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July/August 2015

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1937 SPORT FOUR



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Wagon Wheels,  
the Matchless  
Special raced  
by Peter  
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KYOICHI NAKAMURA

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## ON THE WEB!

### Auction fever

The horde sold off at the J. Wood & Co. auction in Cuba, Missouri, May 7-8 beat all expectations, with total sales approaching \$900,000, fully three times the pre-auction estimates. The sale included hundreds of engines, including this rare circa-1915 Spacke Deluxe V-twin, which sold for \$2,000. See more results at [MotorcycleClassics.com](http://MotorcycleClassics.com) /J-Wood-Cuba



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## Hands-on

A few issues ago (March/April 2015, to be exact), I told you about our online reader surveys, where we query you for your opinions on a variety of subjects. Your response to those surveys helps us choose the stories we run and the covers we feature, and the comments you leave help us track your interests.

Of note is a continuing call for more tech-oriented stories and columns. When we started this magazine (has it really been almost 10 years?!), we knew that loving old bikes doesn't always equal loving to work on them. Being mechanically minded, I look for excuses to work on my own bikes, and I can easily get lost in detailed technical dribble. But I also know that non-mechanical denizens of our little corner of the world go glassy-eyed at the first mention of camshafts or carburetors.

As time rolled by, readers began asking us for more technically-oriented articles, and even if it wasn't exactly a tsunami of requests, it made sense that we should do more in our own shop. We undertook our first in-house bike project in 2007, and in 2011 we cajoled vintage motorcycle mechanic Keith Fellenstein into penning a regular Q & A tech column, Keith's Garage. That same year, we also started our regular How-To series detailing specific maintenance projects.

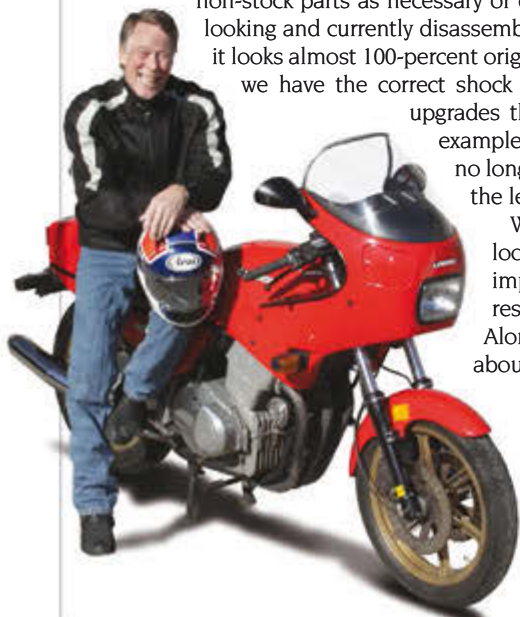
Response to both of those has been overwhelmingly positive, and we get more and more people writing in telling us those are the first pages they turn to when their new issue arrives. More than ever, you want to understand how to get your classic bike going and, once it's going, keep it on the road. That makes perfect sense to us, because not only is it satisfying to do your own work, but properly done, it makes classic bike ownership cheaper, too.

To that end, we're planning a new in-house restoration project to help satisfy your itch to know more about what makes your bikes tick. A quick note, however, about that word "restoration": In the projects we've turned our wrenches on so far, we've intentionally strayed from anything resembling a full-on restoration and instead taken the classic custom route. Going the custom route is fun, and sourcing cycle parts is easier when you're not following the manufacturer's rule book. It's also usually cheaper: As anyone who's done one can tell you, a true and properly executed 100-point, show-quality restoration is an expensive proposition. Then there's the issue of time (there's never enough around here) and of skill (working on that one, but there's still a long way to go), both of which are needed in abundance.

Like our earlier projects, this next one won't be a "proper" restoration. Yet we are adjusting our approach, biasing toward originality instead of custom. We're going to rebuild our bike as close to original as possible, while allowing ourselves to source non-stock parts as necessary or desirable. Our goal is to "restore" a sad-looking and currently disassembled 1970 Honda CB350 to the point that it looks almost 100-percent original, but without worrying about whether we have the correct shock absorbers or hand grips. We'll work in upgrades that make sense (electronic ignition, for example) and figure out work-arounds for parts no longer available, many of them gleaned from the lessons learned by other CB350 owners.

When we're done, we'll have a bike that looks great, runs perfectly and — more importantly to us — isn't so perfectly restored we're scared to ride it on the street. Along the way, we'll all learn a little more about keeping our old bikes going.

Richard Backus  
Editor-in-chief



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No helmet can protect the wearer against all foreseeable impacts. Nothing is a substitute for safe riding practices.

## “As I recall, riders in that business referred to them as Plastic Maggots.”

### Plastic Maggots

Ms. Siegal did her usual fine job (*Honda's Throwback*, March/April 2015). She mentioned the Honda CX500's popularity with England's despatch riders. I can affirm that: while stationed in the U.K. in the mid-1980s, I saw these things everywhere in London, all of them seemingly so employed. As I recall, riders in that business referred to them as Plastic Maggots.

Dana Shifflett/via email

Isle of Skye, Mull, Applecross, etc., all of which are a 250- to 300-mile cruise from home. Sadly, there are fewer classics being used here now. Maybe owners worry about value and the danger of there being fewer sources of engine and transmission parts. Long may the Owners Clubs annual rallies in Europe continue. These encourage great rides to Italy, Portugal, France, Spain and more. Stay safe!

George Martin/Peebles, Great Britain

restoring his second or third bike. You want an individual with enough experience to where he isn't screwing stuff up, but not enough experience to where he glosses over things that would be challenging to a beginner. This would be exciting for the reader as it would be similar to bike build threads, which are exceptionally popular in forums.

Dave Gore/La Mesa, California

### A note from Scotland

Congratulations on the quality of content and paper: Both regularly exceed the U.K. market leaders. I ride mid-to-late 1950s Triumphs and BSAs. Normal summer weekends here in Scotland involve putting a tent on the back and heading northwest via Glencoe to the

### More How-Tos

I would love to see a section in your magazine on restorations. The two paths I'd love to see to accomplish this are: 1) A tech corner-style piece covering topics like "To Powdercoat or Paint?" or "Swingarm Bushings: Steel vs. Brass." 2) The narrative of a guy

Dave,

*Thanks for the letter. We think you'll be excited to hear about our planned restoration series, which, assuming everything goes as planned (always a big if in this business!) we expect to start beginning with the September/October 2015 issue. Stay tuned! — Ed.*

### Remembering the H2

I enjoyed the Kawasaki H2 article

# RIDERS

**Rider:** Jon Neuburger, Holliston, Massachusetts  
**Age:** 59

**Occupation:** Editor for television documentaries

**Rides:** 1965 Honda S65, 1966 Honda S90, 1961 Honda CB72

**Jon's story:** "Six years ago, as my kids became teens and I had more free time, I decided to try my hand at restoring a motorcycle. I always loved bikes, but I had a serious accident at age 17 on a friend's minibike, so I had put riding on the back burner after that. Scanning Craigslist, I spotted an ad for two 1965 Honda S65s for \$400, with a sketchy photo included.

"I borrowed a friend's pickup and drove to the address. The bikes were in the basement of an apartment building. The seller was anxious to get rid of them — his landlord was on his case. So after 10 minutes of me looking them over, the desperate seller said, 'Would you take 'em for \$260?' How could I refuse? It took me about a year to break them down

and restore one of them. I made good use of a wire wheel brush on a grinder. Most of the rusted chrome cleaned up



Jon Neuburger took two battered Honda S65s (top) and built one nice ride (bottom). Way to go!

pretty well. I salvaged the parts to make one complete bike and found some missing parts at Ohio Cycle and on eBay. I added new tires, a new seat and I replaced some of the chrome trim. I sealed the tank with the Caswell Epoxy kit. What great stuff! I pulled the head off the engine and cleaned off the piston head and cylinder top. I painted the bike with rattle-cans and went through hell getting it titled (never buy a bike without a title in Massachusetts). It started pretty easily, but it did need a new condenser to run well.

"I rode it on back roads occasionally, but I have since been acquiring bigger Hondas and renovating them. Next was a 1966 S90, and last year I found a 1961 CB72 that was very rusty, but did start up when I inspected it. That is my current ride. I've run out of garage space. Now I understand how you end up owning 10 bikes! And now I'm looking for something even bigger."

(*Heavy Metal*, May/June 2015), mostly because at the tender age of 18, I bought a used 1972 model. Yes, I survived, and I have fond — and not so fond — memories of that bike. A few of my friends had them, too, and many nights were spent hunting down CB750 riders, who usually turned off at the first available corner. They were lots of fun, but these bikes literally fell apart from

vibration; cracked mufflers, fractured electrical connections, etc. I have had several Suzuki GT750s and these are a much better bike. They are not as fast, but they are smooth and comfortable, with the same 2-stroke wail and they make a better daily rider. I miss my H2 sometimes, but prices are silly and the vibes are still there.

*Jeff Carruthers/Calgary, Alberta, Canada*

### Victor tales

Not long ago, I exchanged letters with a friend who had recently sold a BSA Victor. I had one many years ago that was being passed around. None of my friends ever got it running, myself included. We were newly married (broke) and living in a neat apartment within a converted barn that had a long, down-sloping lane and then went out to a long, downhill road. I can't tell you how many times I pushed that thing, jumped on it and let the clutch out, then pushed it back up and did it all over again. Never once did it show a sign of firing. Looking back on it, maybe I should have checked out something I learned when I was about 15. A Sears moped (Puch) was selling for \$15 between my circle of buddies and no one could get that thing to fire either. We'd take turns putting it up on the center stand and pedal like mad, but get nothing except out of breath. I took the tiny 50cc 2-stroke head and hitchhiked to a local machine shop. The guy put some blue dye on it and pressed it on a piece of paper and showed me how warped the head was. While I waited he milled the head, and charged me something like \$1.50 (this was in 1958).

I went home and it fired right up. I was the neighborhood genius and I rode it all summer with no driver's license, no title, no registration and no insurance. It didn't have a muffler, either, and it sounded like a chain saw — dreadful, actually. Anyhow, I wonder why I never thought to try that with the Victor?

Soon after I got the moped running I turned 16, got my driver's license and bought a 350cc Velocette. It was really hard to start and I always had



Ron Fish's lovely 1968 Triumph Tiger T100C.

to push it downhill, jump hard on the seat to get the bald back tire to bite, pop the clutch, and after two or three tries it would fire and off I'd go. I worked in a gas station and would get done at 10 p.m. With no taillight on the bike, I taped a flashlight to the back fender and put a red lollipop cellophane wrapper over the lens. That was my taillight. Never mind that it had no brake light, at least something on the back glowed red. One of my part-time co-workers was a local cop, but he always looked the other way and never bothered me. My demise on the Velocette was riding home one hot summer night. My parents and older brother were sitting out on our porch and he heard me coming, going through the gears and then downshifting as I turned into our street and down the driveway. He came out to check out the bike and told my folks that it was a "lethal weapon," so I had to sell it. But then I bought a 500cc Velocette, which I hid in a friend's barn. That thing, with one piston the size of a cannon bore, was even harder to start. When my dad found out about it, I was glad to have an excuse to sell it.

I now ride a restored 1968 Triumph T100C. It's very reliable, and at 71 years of age I don't miss the drama that went with the Velocettes, neat as they were.

*Ron Fish/Nalley Forge, Pennsylvania*

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# 6 Rain Suits to Keep You Dry

**1** Back in the November/December 2012 issue (the last time we covered rain suits, if you're keeping track) we said the Joe Rocket RS-2 "might be the best deal going in motorcycle rain suits today." And nearly three years later, we still feel the same way. Now available in an updated high-visibility neon green for the jacket, this suit features a polyester outer shell with a PVC backing plus a nylon comfort liner. A zippered back vent aides ventilation and the collar features corduroy lining for comfort. The two large outer pockets have waterproof Velcro rain flaps and it uses a full-length zipper with a Velcro rain flap and collar, plus an elastic waist and Velcro adjustable cuffs. The pants are made of the same materials, with added melt-resistant panels on the insides of each leg, plus elastic boot stirrups to keep the pants secured. A gusseted zipper runs all the way up to the knees for easier entry and exit. A stellar deal, this suit can be found online for less than \$60 if you search a bit. Available in black, black/yellow, black/red, black/orange, or hi-viz neon in sizes S-3XL. Price: \$69.95. More info: joerocket.com



**2** The Tourmaster Sentinel 2.0 jacket is made from waterproof but breathable rip-stop nylon with sealed seams and an under-the-helmet hood to keep water from leaking in at the collar. Three front pockets have hook-and-loop rain flaps and a fourth chest map pocket is mesh-lined to vent when open. Waterproof zippered underarm vents are a nice touch, as is a back vent to help move air. 3M Scotchlite reflective piping aides visibility, and the jacket has a self-contained pouch for storage. The Sentinel 2.0 pants are made of the same rip-stop nylon, but with an added available Nomex liner on the insides of the legs. There are waterproof, zippered hand pockets for storage, breathable stretch panels above the reinforced knees for comfort and heat-resistant leg panels. The high-rise rear panel includes a pant-to-jacket attachment zipper, and 3M Scotchlite reflective piping aides visibility. Extra-long zippered openings at the leg bottoms aide entry, but riders with large boots will want to remove them first. The pants also come with a storage bag. The jacket is available in black, blue, red and hi-viz yellow. The pants come only in black. Sizes XS-5XL. Price: \$114.99 (jacket), \$94.99 (pants). More info: tourmaster.com



**3** The Mens Hi-Viz Rain Suit from Brooks Leather is a complete two-piece suit made using waterproof heat-sealed seam construction. We ordered our suit in the hi-viz color scheme, and brother, this jacket is bright! The jacket has inside and outside waterproof zippered pockets on the left chest, along with two hook-and-loop storm flap pockets on the front. Hook-and-loop straps provide adjustment at the waist and sleeves, and the soft collar fabric provides comfort. The fully mesh-lined pants have two pockets with hook-and-loop closure, and they feature heat-resistant leg panels to prevent damage from hot exhaust pipes. The leg bottoms have hook-and-loop expansion panels for easy on-off, although riders with large boots will want to remove them first. There are detachable stirrup loops at the ankles and reflective piping that runs down the outside of both legs. A waist drawstring keeps them tight, along with elastic at the waist. The suit comes complete with a storage bag. Available in black, orange or hi-viz in sizes S-3XL. Also available in women's sizes. Price: \$79.95. More info: brooksleather.com



4

the same mesh lining, an elastic waistband, a large cargo pocket on the right leg and zippered leg expansion ports at the bottoms of the legs to aid putting them on over boots, although as with most rain pants, riders with large boots will want to remove them first. Sizes S-3XL. Price: \$64.95 (jacket), \$54.95 (pants). More info: [alpinestars.com](http://alpinestars.com)

**4** The Alpinestars RJ-5 rain jacket is a simple, no-nonsense, pullover-style jacket. A half-length zipper on the front featuring a hook-and-loop rain flap keeps the rider dry, and it's adjustable at the waist and neck. The huge waterproof front pocket — basically the entire stomach panel — doubles as a storage pouch, as the jacket folds into the pocket. There's mesh lining for comfort, along with microfiber lining on the neck. We like its minimalist design, which makes it easy to put on quickly. The matching RP-5 rain pants feature

**5** The Reflective Frogg Togg Kikker II suit feels like it's made of traditional polyester, but instead is made of durable ToadSkinz fabric, which features a waterproof, breathable, micro-porous film combined with a non-woven inner layer. The jacket has a waterproof zippered chest pocket and hand-warmer pockets, reflective piping, an adjustable elastic waistband and adjustable neoprene cuff openings. A nice touch is a removable hood that folds out of the collar and features a drip-free visor. The pants are made of the same material, and feature an adjustable elastic waistband and quick-release buckle. Large reflective panels run down the outside of each leg and the oversized, zippered leg openings with Velcro rain flaps run all the way up to the reinforced knee, making the pants easy to get on and off over boots. Removable elastic spats keep the bottoms of the pant legs down in the wind and rain. We loved our first set of Frogg Toggs, and these are even better. The jacket is available in hi-vis green/black or black/hi-vis green, while the pants are only available in black. Sizes S-2X. Price: \$69.95 (jacket), \$59.95 (pants). More info: [froggtoggsraingear.com](http://froggtoggsraingear.com)



5

**6** The All Weather Over Jacket from Oxford Products USA Inc. is a simple, lightweight, fully-lined rain jacket featuring fully taped seams with reflective piping on the arms, chest and back. There's one waterproof inside chest pocket on the left, plus a lined soft collar and a drawstring waist. The waist and cuffs also have Velcro-adjustable straps. The All Weather Over Pants feature reflective piping down the outside of each leg, along with a comfort lining running from the waist to the knees. The waist is elastic and there are Velcro-adjustable cuffs at the ankles. The large leg gussets are zippered almost all the way up to your knees, making them fairly easy to get on and off with boots on. Both the jacket and pants are sized so that if you wear a size large riding jacket, a size large rain jacket will fit over the top. Both come in their own storage bag. Available in black or fluorescent green, sizes S-6XL. Price: \$49.95 (jacket), \$29.95 (pants). More info: [oxford-products.com](http://oxford-products.com)



6

## Aerostich Ultralight Rain Pants

If you already ride with or have a waterproof jacket, then all you need is a set of over pants. While many of the suits here can be bought separately, if luggage space is especially tight, these Aerostich Ultralight Rain Pants are just the ticket. Recently updated, these pants are now made from a three-layer waterproof/breathable nylon that makes them more durable and better breathing than before. These pants are cut large at the waist, with an inner elastic drawstring to pull them tight to your waist. There's a short waterproof zipper at the front, and the long, non-gusseted zippers on both legs that run nearly up to your knees make these among the easiest rain pants to get on and off with your boots on. The pants fold into an integrated pocket that's just a little larger than a small paperback book and doubles as an interior storage packet. Simple, lightweight, tough and well designed. Sizes M-XL and long sizes. Price: \$87. More info: [aerostich.com](http://aerostich.com)



## The Little Boxer: 1969-1973 BMW R50/5

It seems almost unthinkable now, but in the mid-1960s, BMW came close to abandoning motorcycle production altogether. Sales were in decline, with potential buyers questioning whether they should pay as much for a motorcycle as a small car. BMW was also focused on developing its automobile business, which meant its motorcycle range got somewhat neglected.

The Bavarian maker enjoyed a reputation for expensive, solidly engineered and beautifully built bikes that were reliable, sedate tourers. The then-contemporary R50/2, R60/2 and R69S used a heavy, plunger-derived frame and Earles front fork (telescopic in the U.S. only), while featuring anachronisms like magneto ignition and a 6-volt electrical system powered by a DC dynamo.

In 1964, BMW made the crucial decision to continue making motorcycles, recognizing in the process that a complete redesign of its range would be required. Once committed, BMW lured engineer Hans-Günther von der Marwitz away from Porsche to complete the makeover. The bikes would be built at a new factory in Spandau, near Berlin.

The "Slash 5" series (R50/5, R60/5 and R75/5 of 500cc, 600cc and 750cc) was announced for the 1970 season, and represented a revolution in BMW motorcycle design. Though the basic flat-twin "boxer" engine layout remained, just about everything else was new. Gone was the built-up crankshaft and gear-driven camshaft of the previous range. The new engine used a forged one-piece crankshaft, and borrowed plain-bearing rods from BMW's 2.8-liter 6-cylinder car engine. The duplex chain-driven camshaft now ran below the crank instead of above. Iron-lined light-alloy cylinders replaced the previous cast iron types and were capped with redesigned cylinder heads fed by dual Bing slide carbs (CV on the R75/5). The specification included 12-volt electrics with push-button start, though the



Not exactly popular when new, the 1969-1973 R50/5 is still overlooked today.

kickstarter was retained. Power went through the traditional single-plate, engine-speed clutch to a 4-speed gearbox. The tubular steel frame used duplex tubes with the drive shaft built into the right-side rear swingarm.

The rear spring/shock units were adjustable for pre-load with a simple hand lever. Telescopic forks (a BMW innovation from the 1930s) replaced the Earles fork at the front end. Wheels were 19-inch diameter front and 18-inch rear, with 3.25 x 19-inch front and 4.00 x 18-inch rear tires. Brakes were twin-leading-shoe drum front and single-leading-shoe rear, both of 7.87-inch (200mm) diameter.

Though similar in weight to the earlier R50/2, the R50/5 gained 6 horsepower, giving it livelier performance, while the new frame and suspension improved handling. Moving the camshaft below the crank also meant the cylinders sat higher up, improving ground clearance. For 1972, the 4.5-gallon, chrome-paneled "toaster" tank replaced the bulky 6.3-gallon gas tank, and during 1973 the swingarm was lengthened by 2 inches. The idea persists that this was done to correct handling issues, though there's no evidence to support this. However, it

## ON THE MARKET 1972 BMW R50/5: Sold for \$4,500

Motorcycle buyers — including, apparently, BMW motorcycle fans — weren't very interested in the littlest /5. Solid numbers are hard to come by, but anecdotal evidence suggests less than a quarter of the total production of 7,865 R50/5s came to the U.S., which means fewer than 2,000 were ever on the U.S. market when new. Today, that translates into one of the hardest BMW /5 models to find. This 1972 example was sold by European vintage motorcycle specialist Moto Borgotaro in New York City. Advertised as fully ser-

viced, it had been treated to a comprehensive tune up, completely rebuilt suspension with new front springs and YSS rear shocks, new tires, new battery and

rebuilt carbs. The vendor also replaced the throttle cables and spark plug leads. "Needs nothing, runs great, ready for the road," ran the ad. The seat has been



recovered in a non-stock brown vinyl and the bodywork's clearly been repainted, as BMW never offered the R50/5 in white. Those niggles aside, it appears to be a solid, well-maintained example of this hard-to-find BMW. We think it was on the high side at \$4,500, but given its condition and how hard the model is to find, probably worth it. More info at [motoborgotaro.com](http://motoborgotaro.com)

"The R50/5's early exit from the range means it's the rarest of the bunch."

## BMW R50/5

Years produced	1969-1973
Claimed power	32hp @ 6,400rpm
Top speed	97mph (est.)
Engine	498cc air-cooled OHV flat twin
Transmission	4-speed, shaft final drive
Weight/MPG	451lb (wet)/45-55mpg
Price then/now	\$1,025 (1970/est.)/\$1,500-\$4,000

did allow for a bigger battery box, while still retaining the kickstarter.

No contemporary U.S. road tests of the R50/5 are extant: It seems testers at the major magazines only rode the 600cc and 750cc versions. Yet some general observations of the range would apply. Of the larger bikes, testers noted a narrow powerband that was higher in the rev range. They also experienced some torque reaction in the rear suspension from the driveshaft, especially at low speeds — though this would likely be less noticeable in the 500 with its lower power. Its claimed 32 horsepower was 8 horsepower down on the R60/5 and 18 horsepower down on the R75/5. There was also some "stiction" in the front fork, an

issue that was corrected during 1973 with changes to the fork valves.

And while performance may not be its strong point, the R50/5 has developed a reputation for reliability and longevity matched only by its "Slash 2" forebears. Yet while the 600cc and 750cc engines were carried over to the disc-braked, 5-speed "Slash 6" range in

1974, the 500cc engine was quietly dropped and a 900cc added.

The R50/5's early exit from the range means it's also the rarest of the bunch, with fewer than 8,000 made against more than 38,000 R75/5s, the most popular model. Excellent build quality means they hold up well, but low production makes finding an R50/5 a little harder, as owners seem to hold onto them. **MC**

## CONTENDERS

### Two-cylinder competitors to BMW's R50/5

#### 1965-1974 Honda CB450K/SS

Though the CB750 is widely considered the nail in the British motorcycle industry's coffin, the CB450 was arguably the shroud. With performance comparable to Triumph's Bonneville, the CB450 also boasted top-drawer features like double overhead camshafts, a twin-leading-shoe front brake (single disc from 1970-on) and, importantly, electric start. Perhaps even more important, unlike earlier pressed-steel-frame Hondas, with a tubular steel frame, it looked the part.

Available only in black, the CB450K was built around a short-stroke, 180-degree, 4-main-bearing crankshaft (360-degree for the Japanese market) driving two overhead camshafts by chain. Valves were closed by torsion bar springs with eccentric adjusters. Drive to the 4-speed gearbox was by wet multiplate clutch with chain final drive. The drivetrain fitted into a single-tube cradle frame with conventional telescopic fork and dual spring/shocks on the rear swingarm. For 1969, the new Super Sport K1

got larger valves and revised camshaft timing for two more ponies, a 5-speed gearbox and nitrogen-filled de Carbon rear shocks.

*Cycle* magazine tested the revised CB450 in November 1968, and while they found the suspension stiff and the front brake "marginal," its handling was "on a par with the good middleweights, its toughness on a par all its own. Best of all, the bike feels right — everything tight, snug, rubber-mounted where necessary and working together." They concluded: "The new Honda is beautifully engineered, clean, stylish, easy to maintain and quick ... what more could you want in a motorcycle?"

- 1965-1974
- 43hp @ 8,000rpm (1965-1967)/112mph
- 444cc air-cooled DOHC parallel twin
- 4-speed (5-speed 1968-on), chain final drive
- 420lb (half tank fuel)/45-55mpg
- Price then/now: \$957 (1968)/\$750-\$4,500



#### 1965-1974 Triumph Daytona 500

What if the BSA Group had copied BMW in the late 1960s and invested in a new factory with an updated range of motorcycles? Unfortunately they didn't, so we'll never know. Instead, they soldiered on with Edward Turner's superannuated 1937 parallel twin design with its exposed pushrod tubes, leaky vertical-split crankcases and separate (though now cast in unit) transmission.

Instead of developing something new, Triumph's answer was to screw as much performance as they could from the old engine at the expense of smooth running and durability. After Buddy Elmore won the Daytona 200 race in 1966 on a Triumph 500, a commemorative model with even more performance was inevitable. The new T100R Daytona got a pair of 26mm Amal Monobloc carbs (Concentric from 1968), higher compression and "race" camshafts for a claimed 41 horsepower. A twin-leading-shoe 7-inch front drum brake was fitted for 1969.

Where the Triumph scored was in its rugged simplicity. The 500cc engine was only 5 horsepower down on the 650 Bonneville and smoother in the mid-range. However, to make this power, the Daytona's peak output had been pushed to 7,500rpm, where vibration became a major issue. Ease of maintenance apart, *Cycle* concluded, the only thing the T100R excelled at was "being a Triumph." By 1974, time had passed the Daytona by: Kickstarters and drum brakes were dirt bike territory.

- 1965-1974
- 41hp @ 7,500rpm/105mph
- 490cc air-cooled OHV parallel twin
- 4-speed (5-speed 1968-on), chain final drive
- 396lb (wet)/45-55mpg
- Price then/now: \$1,199 (1968)/\$2,500-\$4,500



# Remembering Superbike, new Ducati twins and Geoff Duke's passing

## Paul Ritter: *Racing the Gods* — A Ducati Superbike Racer's Autobiography

Fans of Superbike racing well remember the names that made the new-for-1976 class the most dynamic of the race season calendar. Cook Neilson and Phil Schilling put Ducati on the U.S. map with the California Hot Rod, while Reg Pridmore and Steve McLaughlin did the same for BMW. Wes Cooley and Erik Buell contested the series, too, as did Mike Baldwin and Keith Code. But there's another rider whose name often seems left out in the memories, Paul Ritter.

That might be due to Ritter's relatively short track career. He rode Ducatis from the beginning, starting with a single-cylinder Diana 250 in his first races in 1973. The 250 single gave way to a 350 Mark 3D desmo single and then, in 1975, Ritter started racing his Ducati 750 Sport street bike. Along the way, he discovered he had a natural talent for racing, honed by watching better riders and learning from their successes. Riding his 750 Sport, Ritter won the 1976 750 Production class championship.

His big break came later that year, when he teamed up with Dale Newton under the Aero-Union banner. In 1977, he raced Newton's 750SS in 750 Production and Newton's Ducati 900SS in Superbike. Ritter dominated the 750 Production class, ending the year with 12 overall wins and one crash. Not bad for someone only four years into the sport.

That year, Ritter won his first Superbike race, coming in first at Sears Point in front of Daytona Superbike winner Cook Neilson, plus Ron Pierce, Steve McLaughlin and Reg Pridmore. "I only vaguely remember the winner's circle ceremony," Ritter writes. "I was over the moon with joy."

Still riding for Newton, Ritter repeated his Sears Point Superbike win in 1978, but the landscape was changing as the 4-cylinder Japanese competition learned how to make their bikes handle as well as go fast. In 1977, four of the seven Superbike wins went to European machines. One year later, European machines

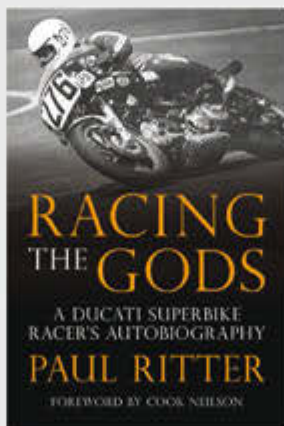


Paul Ritter leads Ed Unini and Jim Haberlin at Ontario in 1976.

— Ducati and BMW — would win only two of six races.

By the early 1980s Ritter had moved away from racing, settling into his engineering profession and a new family. Years later, his love for bikes resurfaced, and he decided to try vintage racing, a decision that would change his life forever. Racing at Steam Boat Springs in 1997, Ritter crashed and was run over by another rider. The resulting injuries permanently paralyzed him from the chest down, and Ritter describes in frank detail the difficult process of reclaiming his life — and his independence.

His accident and the subsequent challenges he faced have given him rare perspective, putting his experiences racing with the greats of the Seventies into sharper focus. Inspiring and historically important, if you love Superbike history, you need to read this book. Octane Press ([octanepress.com](http://octanepress.com)): 256 pages, \$29.95. To order a copy, go to [MotorcycleClassics.com/Ritter](http://MotorcycleClassics.com/Ritter) or see our ad on page 95.



## Vee Two Ritorno Ducati engines

Ducati's first desmodromic V-twin engine powered Paul Smart to victory in the 1972 Imola 200 and Mike Hailwood to his legendary comeback win in the 1978 Isle of Man TT. Replaced by the belt-driven Pantah engine that was introduced in 1979, the bevel-drive desmo ceased production in the mid-1980s, and ever since, parts for the thousands of bikes built with this engine have been drying up.

Ducati bevel-drive engine specialist Vee Two Australia ([veetwo.net](http://veetwo.net)) has addressed this issue, developing a brand-new air-cooled, bevel-drive, desmodromic V-twin engine, unveiled in April by company owner Brook Henry and Vee Two's general manager Andrew Cathcart [Alan Cathcart's son] at Australia's annual Broadford Bike Bonanza historic bike festival. To demonstrate that the engine is close to being customer ready, the

prototype was fired up several times, drowning the Broadford circuit's pits with waves of rolling thunder.

The Vee Two Ritorno Twin (*ritorno* is Italian for "comeback") has a bore and stroke of 88mm x 74.4mm for a capacity of 904cc (production Ducati 900s had a bore and stroke of 86mm x 74.4mm for a capacity of 864cc), and in racing form is expected to deliver around 120 horsepower. A modern re-creation of

the ultimate bevel-drive Ducati desmo V-twin engine, it's being manufactured for sale using the original Ducati drawings, supplied with the approval of the Ducati factory.

It's an externally faithful reproduction of the factory NCR race engine used by Mike Hailwood to win the 1978 Isle of Man TT, with the crankcases and other major castings sandcast in high-strength heat-treated aluminum and external covers cast in magnesium. "While the engine is historically authentic externally, all engine internals have been manufactured using modern materials and up-to-date design technology,"

says Andrew Cathcart. "But all parts are interchangeable with existing bevel-drive engines, so *Ducatisti* around the world whose bikes are off the road because they can't source spare parts for them will now be able to do so from Vee Two Australia."

The Vee Two Ritorno aims to offer cutting edge performance with authentic bevel-drive looks. "We have put together this first prototype engine as a mule to

Vee Two's Brook Henry (left) and Andrew Cathcart with the Vee Two Ritorno.

allow us to commence our testing regime," says Brook Henry. "Over the next 12 months we will extensively develop the engine with the aim of providing both reliable interchangeable street bike components, and an excellent platform to go racing in the Post-Classic Period 5 class here in Australia, or in Vintage Superbike and the air-cooled Pro Twins class in the USA, Japan and Europe."

Good news for Ducati owners everywhere, just don't expect them to be inexpensive: Prices for the Vee Two Ritorno engine start at \$29,000. More info at [veetwo.com](http://veetwo.com) — *Alan Cathcart*

## Geoff Duke: First gentleman of racing

Six-time world champion and six-time TT winner Geoff Duke passed away May 1, 2015, at his home in the Isle of Man, at the age of 92. Duke was the first global superstar of Grand Prix racing as the first rider to win two World Championships in the same year, winning the 1951 350cc and 500cc world crowns on Norton Manx singles, and the first to win three successive World Championships, the 1953-1955 world titles on 4-cylinder Gileras.

In the early 1950s, Duke became a household name in Europe thanks to his good looks, stylish riding, polite manner, and especially his underdog success defeating the 4-cylinder Gilera and MV Agusta multis aboard the much less powerful but better handling Norton singles. Ironically, thanks partly to the resentment by Norton's directors that Duke would be earning more than them if they paid him what he was worth, Duke transferred to the Gilera team — for twice the salary he was earning at Norton. He swiftly transformed Gilera's fast but unruly fours into unbeatable machinery that took him to three 500cc world crowns.

Duke was also the first rider to wear one-piece racing leathers, after he enlisted his local tailor to make a lighter and more efficient outfit to replace the heavy and baggy two-piece race suits used up to then. He won the 1950 Senior TT wearing these leathers on his first ride for the Norton factory team, with many riders following suit at the end of that season.

Duke's Gilera career was punctuated by the six-month ban imposed on him by the Federation of International Motorcycling (FIM) at the start of 1956, after he and Gilera teammate Reg Armstrong supported the threat of a rider's strike at the 1955 Dutch TT at Assen where, in spite of huge crowds in excess of 100,000 fans, the organizers paid the hard-pressed privateers forming the now famous

"Continental Circus" a pittance. Although a new regulation came into effect at the end of the season compelling organizers to pay riders a much higher cash sum than before, Duke's reward was to be suspended from racing for the first half of the following season, leaving him unable to defend his 500cc world title. Imagine the FIM suspending Marc Márquez or Valentino Rossi for such a period — and for such a reason — today!

Geoff Duke was the supreme racer of his generation. Impeccably behaved and always polite, to foreign enthusiasts he was the quintessential Englishman. His love of Italy and its people was reciprocated in full, and his contribution to the sport as it struggled to gain acceptance in the postwar era cannot be overestimated, for he more than anyone else was responsible for putting two-wheeled road racing on the global map. — *Alan Cathcart*



Geoff Duke on grid for the 1959 Ulster GP riding a 500cc Norton Manx.

# THE UPSIDE- DOWN INDIAN

1937 Indian Sport Four



Story by Margie Siegal  
Photos by Sedrick Mitchell

Was this the bike that killed Indian? Some enthusiasts say that when Indian brought out its still-controversial “upside-down” 4-cylinder design in 1936, the Springfield, Massachusetts, firm started down the slippery slope to failure. 1936 was the same year Harley-Davidson introduced its iconic Knucklehead, a stylish motorcycle with a look that still resonates today, while the “upside-down” Four faded from view.

The idea that the redesigned Four hurt Indian is held by no less than the AMA Motorcycle Hall of Fame, which, in its summation of the model, said, “It was the answer to a question no one had asked: What was wrong with the Indian Four of the 1930s? As it turned out, very little. But that didn’t stop Indian engineers from ‘improving’ the design in 1936. And in the process, building one of the company’s biggest flops.”

Frank Westfall, an expert on American inline fours and the owner of our feature bike, disagrees — and most emphatically. “The ‘36 and ‘37 Indian Fours had a lot more power. The 1927-1935 Fours were dogs. Dave Holzerland is an Indian Four expert, and his 1935 Four is in top running order, but when I am riding my Henderson on a run with him, I have to pull over and wait. The Henderson — built in the Twenties — is faster than the Indian Four built in the Thirties.”

Frank has support from other Indian Four fans. “Red” Fred Johansen, Antique Motorcycle Club of America director, has no fewer than three 1937 Indian Fours, and thinks they are perfectly fine motorcycles. “They are supposed to overheat in hot weather, but that’s an old wives’ tale — they don’t. They were the Gold Wing of their day. They are comfortable and will go all day long. If one passes you, you will hear their sound — like a herd of bumblebees or a small airplane going by. There’s nothing like it.”



The Indian Four was based on the Ace, a popular motorcycle designed by William Henderson in 1919. The Ace was powered by an inlet-over-exhaust inline 4-cylinder engine, with chain final drive. It was smooth and fast, but the company that built it had suffered serious setbacks. Henderson was killed in an accident in December 1922, and the company's financial management was worse than hopeless — a not uncommon problem in the Roaring Twenties. After two separate reorganizations, the patents and remaining stock for Ace were bought by Indian in early 1927.

### Indian gets an Ace

In the 1920s, Indian's management was not much better than Ace's. At one time one of the largest motorcycle companies in the world, Indian had been run by professional management types and financiers since



### 1937 INDIAN SPORT FOUR

**Engine:** 77.21ci (1,265cc) exhaust-over-inlet inline four, 2.75in x 3.25in bore and stroke, 35hp @ 3,600rpm (est.)  
**Top speed:** 90mph  
**Carburetion:** Two 1-1/8in Zenith  
**Transmission:** 3-speed hand shift, chain final drive  
**Electrics:** 6v, magneto ignition  
**Frame/wheelbase:** Dual-downtube steel cradle/61in (1,549mm)  
**Suspension:** Trailing-link leaf spring front, rigid rear  
**Brakes:** 8in (203mm) SLS drum front and rear  
**Tires:** 4 x 18in front and rear  
**Weight (wet):** 515lb (234kg)  
**Seat height:** 30in (762mm)  
**Fuel capacity/MPG:** 4gal (15ltr)/40-50mpg  
**Price then/now:** NA/\$25,000-\$50,000

World War I. These administrators were much more interested in short-term gain than the long-term viability of the company. In the 1920s, some executives were effectively embezzling funds. Even before the stock market crash of 1929, Indian had repeated cash flow problems and was on cash-only status with many suppliers.

Yet while Indian's management may have been suspect, the company's engineers were top notch, and passionate about the company's product. Charles B. Franklin, the designer of the Sport Scout and the Indian Chief, was the head of Indian's engineering department. Arthur Lemon, chief engineer for the Ace after the death of Henderson,

had been hired by Indian when it bought Ace, and was put in charge of developing the newly acquired model.

At first, besides painting it red and changing the tires and





fenders, Indian did not make major changes to the Ace. In August 1928, the Ace engine was bolted into a single-down-tube frame modeled after the frame of Indian's successful 101 Scout. The Scout-type frame didn't work well with the Four engine, lending excessive vibration, and was quickly replaced by a double-downtube frame. Although this frame didn't vibrate like the Scout frame, it was considerably heavier and slowed the bike.

Indian's first major change to the engine was made in May 1929. The Ace three-bearing crankshaft was replaced by a chrome nickel five-bearing shaft, which was stiffer and more reliable over the long haul — and heavier. Henderson's Ace, a light, speedy thoroughbred, was being turned into a Clydesdale. The reason was the prospect of police sales. Indian was competing with Henderson for the motorcycle cop market, and reliability was an important selling point.

Following the onset of the Great Depression, Henderson pulled out of the motorcycle market in 1931. No one had money at that point to buy motorcycles — or anything else. Indian had been bought by E. Paul DuPont a year before, but was still saddled with debt and bad investments left over from the atrocious management of the 1920s.

By 1935 things were looking up, and Indian decided to revamp the Four engine. The engineers involved in the revamp were a new group, as Arthur Lemon had left to start his own business in Michigan and Charles B. Franklin had died, way too young at only 52, several years before.

The problem Indian was trying to solve was heat dissipa-

tion. With top-end lubrication not really well understood, available lubricants a long way from perfection and contemporary metal alloys for cylinder heads a study in shortcomings, Indian's engineers tried their best with what was available.

### The new Four

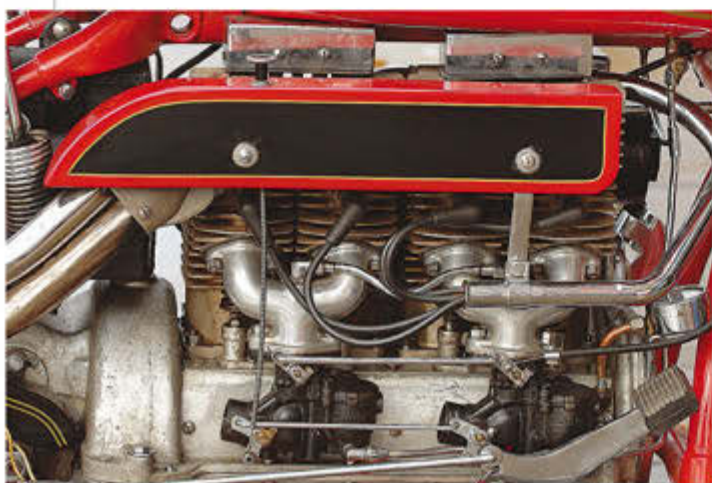
When it was introduced in late 1935 as a 1936 model, Indian claimed the new Four was the fastest bike it had ever built. Frank Westfall states that there was possibly a 20 percent improvement in horsepower and an increase in usable rpm range, rising from 2,800-3,000rpm to 3,500-3,600rpm.

Jerry Hatfield, an antique motorcycle expert and author, states that the 1935 and earlier Indian Fours put out about 30 horsepower and were good for about 75mph, and the 1936-37 Fours had 35 horses on tap and could manage 80mph. Red Fred says that his 1937 Four is a good, comfy ride up to 80mph.

The engine configuration was unusual. Before 1936, all American inline fours were either flathead designs with side-by-side valves or an inlet-over-exhaust valve configuration, with the intake on top of the cylinder and the exhaust on the side in the cylinder. The 1936 Four had the exhaust valves, and hence the exhaust pipes, on the top of the engine, with the intake plumbed up and under the cylinder head, making it an exhaust-over-inlet design. This arrangement, along with a new updraft Marvel carburetor, spawned the nickname "upside-down" Four.

Unfortunately, Indian's engineers did not consider the rider when designing the new engine. "If you are riding the bike and

"Introduced in late 1935 as a 1936 model, Indian claimed the new Four was the fastest bike it had ever built."



You'd smile, too: Owner Frank Westfall riding his Indian Four (above). Exhaust-over-inlet design put the exhaust pipes on top of the engine and the intake below the cylinder head with updraft carburetors, prompting the nickname "upside-down" Four.

wearing shorts on a hot day there is a problem," Frank says. The new design much improved the dissipation of heat, a goal of Indian's engineers, but it put the four hot exhaust valves and the header pipe much too close to the rider's leg. Early 1936 models had a small heat shield and exposed exhaust valve gear and stems. The heat shield was quickly found to be inadequate, and by the end of the year the exhaust valve gear was enclosed and the heat shield enlarged.

Other features of the bike included a recirculating oiling system (standard on Indians since 1933) and a leaf spring front end, which riders appraise as providing as good or better handling than the more familiar coil spring fork designs of the era. Harley riders derided the new bike as ugly, and supposedly coined the model's nickname.

Gary Stark of Starklite Cycles ([starklite.com](http://starklite.com)), a specialist dealer in classic Indians and parts for them, says the Marvel carburetor was not always reliable and the engine would overheat. Red Fred disagrees. He says the Marvel carburetor is reliable if set up correctly, but that it is complicated and delicate. There were also complaints about the heat that came off the engine from the motor officers who had to ride the bike all day in any weather. In any event, in 1939 the resale price for a 1936 or 1937 "upside-down" Four was the same or less than the same year 45-cubic-inch Sport Scout twin.

In 1937, Indian changed to twin Zenith carburetors and dual aluminum manifolds to carry mix to the 4-cylinder. According to Indian expert Jerry Hatfield, the added complexity didn't make the bike more powerful or any faster, although the

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**“For 1938 and later model Indian Fours,  
the intake valves went back on top and the exhaust valves to the side.”**

Zeniths may have been less problematic. Red Fred thinks the Zeniths are actually harder to set up, as they have to be in sync, while Frank Westfall says the twin carb setup makes for a peppier engine. Other new features were a new headlight with high and low beams, and chrome exhaust pipes and mufflers. The new features did not halt the catcalls from the Harley crowd, or complaints about the heat from the engine.

Behind the scenes, Indian engineers were at work revising the Four's engine. For 1938 and later model Indian Fours, the intake valves went back on top and the exhaust valves off to the side in standard F-head configuration, putting the exhaust manifold down low instead of up high. They were not only beautiful, but rugged, fast and smooth, and have proven a timeless design. Enthusiastic owners still go touring on them.

### **Frank's Four**

One person who has probably put as many miles on American fours as anyone living today is Frank Westfall, an enthusiast with a penchant for adventure. To date, he has participated in five cross-country rallies, all on pre-World War II American-built fours. Frank started collecting American motorcycles back when you could get them for next to nothing, and he put together an interesting collection of machinery. Now that prewar American iron has become valuable and collectible, Frank trades bikes he has for bikes he wants. Some time ago, Frank acquired a 1928 Harley-Davidson factory hill climber. The Harley museum found out he had it and offered him three bikes, including this 1937 Indian Four, in trade.

In typical Westfall fashion, Frank reserved judgment on his upside-down Indian until he took it out for a ride with some other riders and their bikes and discovered “it could pull on a KJ Henderson,” a benchmark American four in Frank's eye. Despite the age and value of these machines, Frank does not

like to ride slow or avoid mud puddles. His evaluation: “It's a nice, low-slung four with a low center of gravity. It handles better than a lot of modern bikes.”

He continues: “The brakes are adequate — if adjusted properly — for today's roads, but understand that I am not going that fast [Note: “not that fast” for Frank is staying at the speed limit]. You have an investment in a bike like this, you are going to cruise, not race.

“It takes regular gas. Low octane is higher octane than was available when the bike was built. It doesn't like high ethanol gas, so you have to be a little careful where you gas it up. It uses straight 50 weight oil, or 60 weight if it is hot out. If the motor is set up right, it can use synthetic oil. You have to break in the motor first, because if you build a motor and run synthetic, the motor will not break in. You have to do a thousand miles on the rebuild first, then use synthetics.”

On that note, Frank says that frequent oil changes are key to reliable running. When he participates in cross country rallies like the Cannonball run, he changes the oil every night. Otherwise, oil changes happen between 500 and 1,000 miles. “The more changes the better — it's cheap insurance.”

One of the selling points of the Four was easy starting, and it is still easier to prod a Four into life than most other kick-start bikes. “Full throttle, full choke. Turn the key off and give it a full kick; that gets the gas in the carb. Turn the key back on, give it a little choke if it is cold and kick. Fours always start on the first or second kick, if the magneto is in good shape. Live by the mag, die by the mag. The mag has to be good,” Frank says.

That's a little more work than the average rider is used to, but Frank says it's easy and so worth it. “They are a gentleman's ride no matter how you slice it. They are a lot of fun, and so damned smooth — it's a Four!” **MC**



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# UNAPPROACHABLE

## 1957 Norton International Model 30

Story by Greg Williams  
Photos by Jeff Barger

As early as 1908, Norton had adopted the famous “Unapproachable” tag line to describe its motorcycles; the slogan took on renewed meaning in 1927, when Norton’s Walter Moore designed a new overhead camshaft engine called the CS1 — for Camshaft Model One.

Based on the bottom half of Norton’s Model 18 overhead valve 500cc single, an engine first seen in 1922, the rest of the CS1 was completely different, with a vertical bevel-shaft drive to an overhead camshaft. The bevel tunnel and the paddle-shaped timing chest and cover on the right side of the crankcase gave the appearance of a cricket bat, a reference used by British enthusiasts to this day.

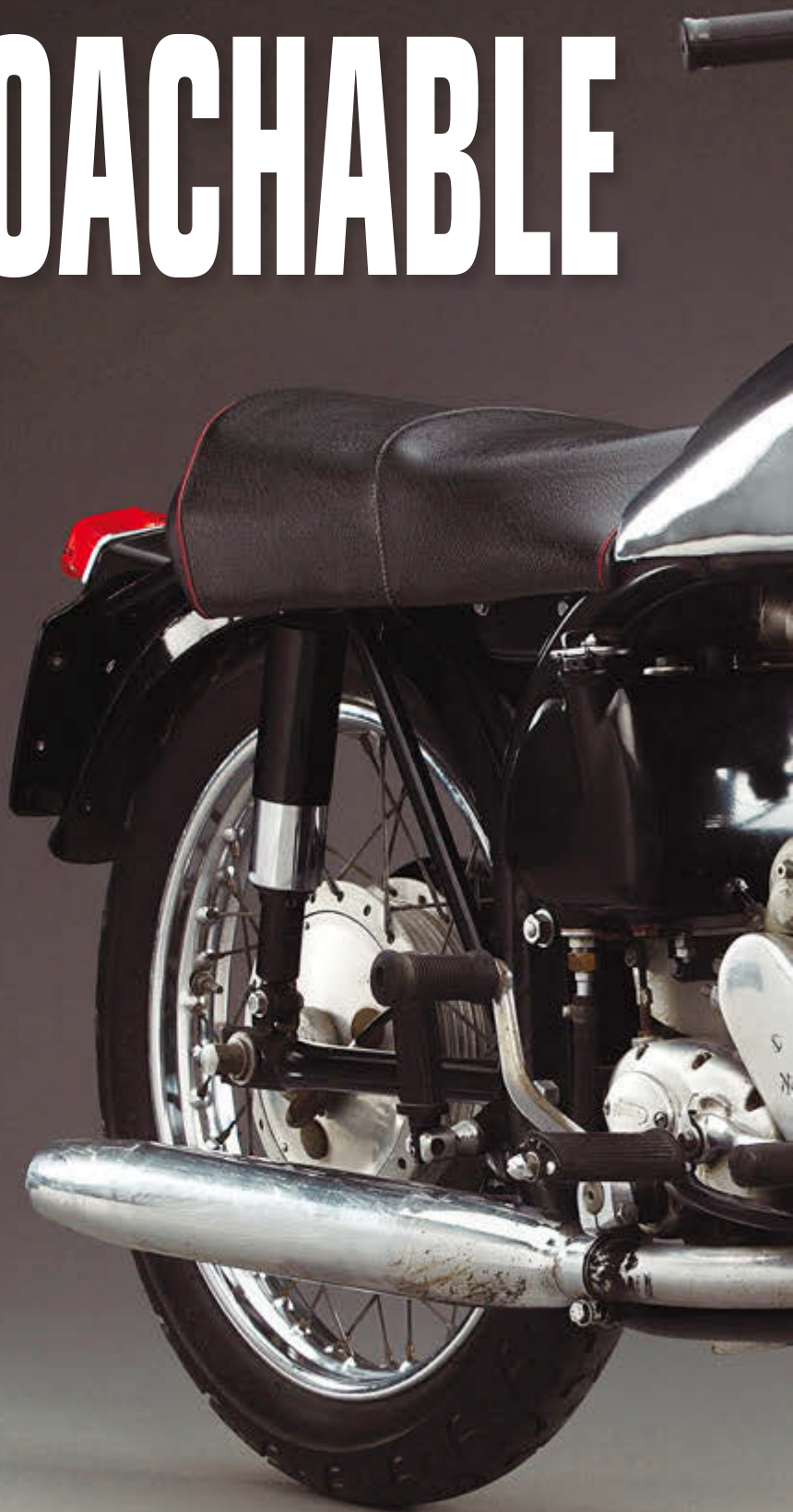
Placed in a new frame complete with a Webb girder fork, a purposeful-looking gas tank and 8-inch drum brakes front and rear, the CS1 looked and acted the business of racing. And while the engine wasn’t entirely without faults, the machine performed admirably. Alec Bennett took a new CS1 to victory in the 1927 Isle of Man Senior TT, ensuring the importance of the overhead cam engine in Norton’s racing program.

In 1929, Moore — who owned the rights to the overhead cam engine — left Norton to pursue a career at German-based NSU. Because of this move, Norton was prompted to redesign the overhead cam engine. Chief designer Arthur Carroll led the work, together with assistant Edgar Franks and development engineer Joe Craig.

Gone was the cricket bat-shaped tower drive, but Carroll retained the CS1’s 79mm bore by 100mm stroke, and these dimensions remained the same for every 500cc single Norton made until 1963.

### The International

All of this is a long-winded way of introducing the Norton International, which first appeared in 1932 as the 500cc Model 30 and 350cc Model 40.





These were Norton's top-of-the-range sporting motorcycles, and were based on developments first tried in their works racing machines. In Norton's catalog, the CSI became a touring model, while the International was intended for track use or fast road-work. The International could be ordered with any number of Norton's factory race goodies to make it a competitive mount for amateur, or "clubmans," racing, but it could also be bought with lights and a kickstarter to make life easier for use on the road.

In 1936, Norton introduced the Manx Grand Prix version of the International. Built solely for racing, the Manx Grand Prix featured magnesium crankcases and cambox and, by 1938, undamped telescopic forks. With a magneto to provide spark, there was no need for a generator to supply power for lights, as there were none.

Production of both the Manx and International models halted in 1939. By that time, the standard International incorporated a 4-speed footshift gearbox running in Norton's "garden gate" plunger-suspension rear frame with girder front fork — it hadn't yet been upgraded to the telescopic forks of the Manx Grand Prix.



## 1957 NORTON INTERNATIONAL MODEL 30

**Engine:** 490cc air-cooled OHC single, 79mm x 100mm bore and stroke, 29.5hp @ 5,500rpm (claimed)

**Top speed:** 100mph-plus (est.)

**Carburetion:** Single 1-5/32in Amal TT

**Transmission:** 4-speed, chain final drive

**Frame/wheelbase:** Dual-downtube steel cradle/55.5in (1,410mm)

**Suspension:** Telescopic forks front, swingarm w/dual shock absorbers rear

**Brakes:** 8in (203mm) SLS drum front, 7in (178mm) SLS drum rear

**Electrics:** 6v, magneto ignition w/manual advance/retard

**Tires:** 90/90 x 19in front, 100/90 x 19in rear

**Weight (wet):** 380lb (173kg)

**Seat height:** 31in (787mm)

**Fuel capacity:** 4.5gal U.S. (17ltr)

**Price then/now:** \$750 (est.)/\$7,000-\$16,000

## Sparking desire

According to motorcycle enthusiast Joe Block of Chicago, Illinois, early Norton International single-cylinder motorcycles are some of the most desirable machines anywhere. "The Norton International is a gorgeous motorcycle, in my opinion, and epitomizes British machines," Joe says.

Joe is also a fan of Norton's famous Featherbed frame, which was developed post-World War II by Irish brothers Rex and Cromie McCandless. In the early 1940s, the McCandless brothers were working to improve the handling of their own Triumph motorcycle, building a new swingarm frame to make their T100 Tiger more competitive. It wasn't long before the brothers' work came to Norton's attention, and they were persuaded to create a prototype frame for the company — a duplex-tube chassis with swingarm rear suspension. It was designed to lower the bike's center of gravity by moving the fuel tank farther back from

the steering head and helped centralize weight for better handling.

First raced at England's Blandford circuit in 1950, where it won with a record speed and record lap, the new frame brought Norton a 1-2-3 win in both the Junior and Senior Isle





of Man TT races. It was clear the Featherbed frame was a game-changer, and the first road-going Norton with a Featherbed frame was the 1951 Model 88 Dominator, equipped with the company's new 499cc parallel twin engine.

But getting back to the International, the 500cc Model 30 and 350cc Model 40 returned in 1947, updated with Norton's Roadholder forks but still using the garden gate plunger frame. The last real significant update occurred in 1953, when Norton placed its Model 30 and Model 40 single-cylinder engines in the Featherbed frame. "After World War II and into the early 1950s, these single-cylinder Nortons were becoming less competitive," Joe says. "When Norton decided to use the Featherbed frame for its International, they breathed a little life back into the model, but sales were starting to dip. They were expensive to produce, and performance-wise they were being eclipsed by machines that cost less to buy. Plus, by the mid-1950s the engine was getting a little dated for the majority of the general public."

By 1955, the International was no longer listed in Norton's sales catalog. A Model 30 International, with its all-alloy 79mm bore by 100mm stroke single-cylinder engine could, however, still be special ordered until 1958. Compression was 8.1:1, and according to Barry Stickland, writing for the Norton Owners Club (NOC) U.K., a new style of muffler was introduced to help the engine, which was rated at 29.5 horsepower, deliver a bit more power. The wheel hubs were full-width cast iron. Roadholder forks absorbed bumps at the front, and dis-

tinctive bolt-on chrome panels adorned the gas tank. Very few 500cc Internationals were made in these later years. According to figures Joe has found, only 70 500cc Model 30 and 10 350cc Model 40 Internationals were built in 1957.

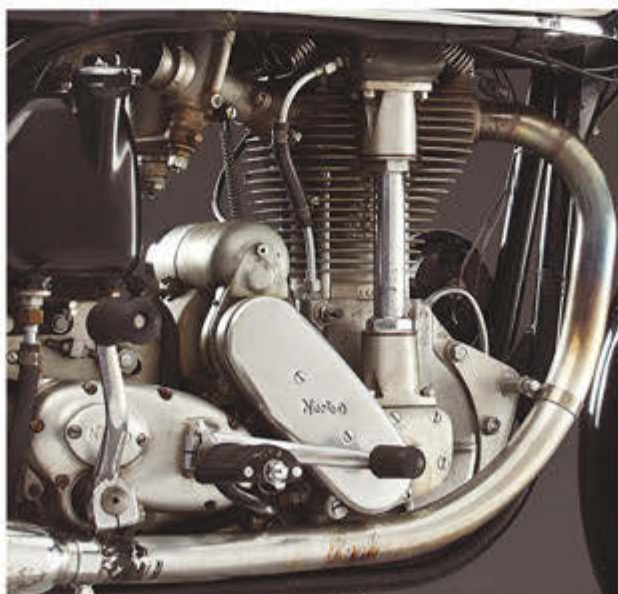
### Joe Block's International

With Joe's affinity for the Featherbed frame, when he found this 1957 Norton International Model 30 for sale, he didn't hesitate to buy it. Joe also has a twin-cylinder 1961 Norton Manxman 650 with a Featherbed frame, and the single-cylinder International with the Featherbed simply adds to his Norton riding experience.

Joe's stable of machines also includes a 1953 Ariel Square Four (featured in the March/April 2013 issue of *Motorcycle Classics*), a 250cc single-cylinder 1937 Velocette MOV, a 1950 Vincent Rapide and a modern 2014 KTM. Joe likes to ride. He is the third owner of this 1957 Norton International, and it's a very original machine. That's just the way Joe likes to find them — showing timeworn scars of active duty.

According to its known history, this Norton left the factory on Feb. 8, 1957, and was sold to Woody Kimes, a Norton dealer in Mansfield, Ohio. During the first year or two of his ownership, Kimes somehow damaged the gas tank. He ordered a replacement from Norton, and was sent one meant to fit a 1956 model; it doesn't have the bolt-on chrome panels that a '57 or '58 International tank would have featured.

Kimes kept the Norton until 1973, when Jerry Ficklin



Timeless design: The 490cc overhead cam single's design roots go back to 1927.

Slim, almost minimalist design gives the Norton International its thoroughbred looks, while light weight and a willing engine help it perform.

of Sheridan, Indiana, bought it. Jerry operates a small British-bike shop called Vintage Motorcycle Supply. As purchased, the top end of the engine was off of the Norton, and the entire machine was dusty and dirty from sitting since the early 1960s. "I took the engine apart," Jerry says. "The bottom end was tight and the bearings were good. I put in new rings and cleaned the valves. I also put on new chains and tires, and apart from a good clean, that was about it."

Jerry rode the bike occasionally, putting some miles on it, but by 2014 the International was surplus to his personal collection. "I had it for 40-some years.

It's fun to ride in the mountains and play boy racer, but it's not the best bike to take out for Thursday night bike get-togethers," Jerry says. "I just wasn't riding it as much and it was time to sell." That's when Joe heard about the Norton. He bought it with 25,668 miles on the original Smiths speedometer; in a year, he's added some 600 miles to that figure.

Joe obtained Norton factory records from the Norton



Owners Club, and the documents show that his International has all of the correct numbers — including engine and engine case mating numbers, frame, gearbox and forks — that the machine had when it left the works. Nonstandard extras were taller American handlebars and the black finish. The standard home market finish was Norton polychromatic grey, and that's how most of the last Internationals were delivered. Joe maintains that a black late-model International, from the factory, is a very rare machine.

During his ownership, Joe's done nothing to the Norton but sort out some wiring. The hot lead to the horn shorted out and slightly damaged a few wires. With the electrical loom fixed and a sealed 6-volt battery in place, the Lucas 6-volt generator keeps everything topped up and all of the lights work.

Joe likes the simplicity and the running characteristics of single-cylinder engines, but admits there is a technique to starting them. "Jerry gave me a lesson on how to start the International, and now I think I've got the procedure down to two or three kicks."

The routine begins by thumbing the choke lever on the right hand handlebar closed, followed by a "tickle" of the float on the 1-5/32-inch Amal TT carburetor. Thumbing the lever on the left handlebar, Joe retards the timing on the manual advance Lucas magneto. Then, using the kickstarter, he brings the piston up to compression, just before top dead center. Next, he pulls the small decompression lever, just below the clutch lever, and nudges the piston past compression. Without disturbing the piston, he brings the kickstarter back to the top of its travel. Finally, with a good, solid kick, the International should fire. The ignition can be advanced and the choke slowly opened as the engine warms. "It is easier to start once it's been running for a bit," Joe explains. "The magneto does still seem to be quite strong, although it's never been rebuilt."



Owner Joe Block with his Norton International.

Replacement gas tank was supplied by the Norton factory about 1959, but was actually for a 1956 model, not 1957.

Addressing his classic motorcycle maintenance philosophy, Joe says, "I prefer to consider myself more of a rider and a caretaker than a collector, and I'm not a fastidious cleaner. None of my bikes are garage queens, and the Norton certainly gets ridden." Joe keeps the International at a second home near the Driftless Area in southwest Wisconsin, a region known for its carved river valleys. He says the roads around his house offer plenty of curves, as they rise and drop through a diverse topography that includes forested hillsides, prairie grasslands and expansive wetlands. "I can sometimes ride 40 or 50 miles without seeing any other traffic," Joe says of the experience. "It's something of a motorcycle mecca."

"The Norton, with its rather tall gearing, is ideally suited for this kind of riding. It's not an easy bike to ride in the city,

because there's such a gap between first and second gears. But second, third and fourth are all close together, and once up to speed, it's a distinct pleasure."

And for Joe, that's as close to an unapproachable experience as there could be on a finely fettled Norton. **MC**



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# LANGUAGE BARRIER

## 1971 Bridgestone Mach II SS

Story by Greg Williams  
Photos by Elisif Andrews Brandon

Here's a story that features plenty of BS. And before anyone gets huffy about our language, let's set something straight: BS stands for Bridgestone, as in Bridgestone motorcycles.

Early in its history, the Japanese manufacturer shortened its name to BS. Looking back, the decision to use those two simple initials seems a poorly considered marketing decision. Yet it didn't seem to work against the company, which became known for its high quality, innovative, 2-stroke motorcycles.

### A little Bridgestone history

Bridgestone's roots go back to 1931, when Shojiro Ishibashi founded the Bridgestone Tire Company, so named because in English Ishibashi's last name translated into stone (*ishi*) bridge (*bashi*). He reversed the order of the words to form Bridgestone, and the company produced tires and a number of other rubber goods.

After World War II, Ishibashi began looking for other products to manufacture. Bridgestone first got involved in automotive parts, but Ishibashi recognized Japan's need for economical and reliable personal transportation. He began building bicycles in 1946, and by 1950 was pursuing the marriage of bicycles and engines with Bridgestone Cycle Industries.

Through an arrangement with Fuji Precision Engineering Co., Bridgestone

sold 26cc engines. Called the BS Motor, they were simple friction-drive clip-on units that fit over the rear wheel of a bicycle. By 1953, Bridgestone was offering the complete BS-21 Bambi, its own bicycle and Fuji clip-on engine, and before too long the engine had grown to 49cc. With the Bambi selling well, Bridgestone

decided to begin producing full-fledged mopeds and motorcycles.

To meet this goal, the company had to hire designers and engineers, many of them from other Japanese motorcycle manufacturers such as Marusho and Tohatsu. In 1958, Bridgestone introduced the Champion moped with a pressed-





steel frame, 24-inch wheels and a 50cc 2-stroke engine equipped with pedals for starting. It looked very similar to the NSU Quickly.

Bridgestone didn't have room in its own factory for production, so the machines were built by Fuji. After opening a new manufacturing plant in

Ageo, Japan, Bridgestone assumed full production.

By 1963 Bridgestone had several models based on the Champion (which by then had been redesigned to be more conventional looking, with a backbone-mounted gas tank and smaller, 18-inch wheels), and had also created several

new prototypes, none of which ever saw full-scale production. What did come out of the factory, though, was the new BS90, a single-cylinder rotary valve 2-stroke. At the same time, Bridgestone began exporting the BS7, a moped based on the Champion 2-stroke, through the Rockford Scooter Co., Inc. of Rockford, Illinois.



## 1971 BRIDGESTONE MACH II SS

**Engine:** 198cc air-cooled rotary induction 2-stroke parallel twin, 53mm x 45mm bore and stroke, 21hp @ 8,000rpm (claimed)

**Top speed:** 85mph

**Carburetion:** Two 17mm Mikuni VM

**Transmission:** Dual-mode 4/5-speed, chain final drive

**Electrics:** 12-volt, coil and breaker points ignition

**Frame/wheelbase:** Single-downtube steel cradle/48.6in (1,234mm)

**Suspension:** Telescopic forks front, dual shocks rear

**Brakes:** 7in (178mm) TLS drum front, SLS drum rear

**Tires:** 3 x 18in front and rear

**Weight (dry):** 274lb (124 kg)

**Seat height:** 30in (762mm)

**Fuel capacity/MPG:** 2.64gal (10ltr)/40-50mpg (est.)

**Price then/now:** \$625/\$2,000-\$4,000



### Bridgestone in the U.S.

A December 1963 issue of *American Motorcyclist* cited Rockford as the sole U.S. agent for Bridgestone, noting that Rockford had begun utilizing its own air-planes "to streamline communications with its dealer organization" and provide parts and support. American dealers were often small lawn mower and equipment sales and service shops, while some larger regional department stores also sold Bridgestone and rebadged Bridgestone products.

Rockford Scooter was later renamed Rockford Motors, and by 1965 the company was Bridgestone's most important retailer thanks to the lucrative American market it served. A new bike, the BS175 Dual Twin, was launched in 1966. Featuring a 175cc 2-stroke parallel twin

with dual carburetors and rotary valve intake, the Dual Twin was, *Cycle* magazine wrote in a March 1966 test, "by all specs a doubled-up 90cc Bridgestone 'Sport.'"

Bore and stroke for each cylinder was the same as the single. The rotary intake valves were placed outboard on each side of the crankshaft, fed by carburetors

completely enclosed under alloy side covers and drawing air piped in through a paper filter.

Ignition and generator components were combined into a single unit placed behind the alloy cylinders, which featured chrome-plated bores. Oil-injection was a standard feature, and a unique feature of the machine was the "Sport Shift" dual-mode transmission, which featured a small hand-operated lever high on the left side of the transmission. Shifting the lever forward put the transmission into a 4-speed rotary shift pattern, with neutral between fourth gear and first gear, and with the gear pattern repeated endlessly by pressing down on the foot shift. Shifting the lever rearward brought an overdrive fifth gear into play and made the transmission shift in the regular one





down, four up pattern, with neutral between first and second gear.

At the 1966 Tokyo Motor Show, Bridgestone showed off the prototype café racer style BS200 Mach I. Based on a BS175 engine with enlarged bores, this motorcycle was never put into production, but in 1968 Bridgestone put the 200 engine into the running gear of the Dual Twin, creating the BS200 Mach II. Available in RS for Road Sport and SS for Street Scrambler models, the motorcycle enjoyed a four-year production run, until 1971. By this time, Bridgestone had been slowing down new model development and eventually decided to focus solely on tire production, leaving motorcycles behind.

### Carlos Santana's Mach II SS

30-year-old Carlos Santana got interested in motorcycles about 10 years ago, and it was his enthusiasm for speed and handling that led him to swing a leg over a bike. A 2003 Honda CBR600RR was his first machine, and it remains a focal point in his growing collection. In 2007, Carlos went to the Larz Anderson Auto Museum in Brookline, Massachusetts, to attend the Japanese Day festivities. He was looking for a vintage Datsun 1600 roadster and wanted to establish some contacts. At the show, he saw a café-style Honda CB160. He liked it, and spoke at length to the owner. When he got home, he started

searching for an older CB160. He found one, bought it, brought it back to original spec and rode it for some time.

Carlos also bought a vintage 1968 Datsun because of that show, and he became friends with Charlie Ellis, a member of the Datsun Roadster Owners of New England club. Charlie told Carlos

about an old motorcycle in his barn, telling him if he was interested, he could have it.

### Rusty but rare

The barn-find machine was a last year 1971 Mach II SS (also called the Mach II SS-7 in some Rockford ads), with twin



More than a bit neglected, Carlos Santana's Bridgestone BS200 Mach II SS as found.

Carlos is from a family of gear heads. His dad, Ed, was a rally car navigator and enjoys turning wrenches. Carlos' mother, Gloria, and his older brother, Eddie, support their mechanical adventures, although they don't get too greasy. Ed and Carlos work together on mechanical projects in the Santana family two-car



Before crating and shipping the Bridgestone to Joe's shop, Carlos removed the gas tank, seat and rear grab bar. After it arrived in Alabama, Joe took photo-

Joe stripped the frame and center stand, and then painted them black. The rear shocks and front forks were in good shape, but required repainting to bring them back to life. The wheels were stripped and the hubs were polished before being put back together with replacement spokes and rims shod in, what else, Bridgestone tires. The headlight bucket, handlebars, rear fender, exhaust header pipes and rear axle adjusters were sent out for chrome plating. Joe bumped

**Chibi**  
THE TOUGH ONE

Chibi is a small, compact motorcycle with a large front wheel and a smaller rear wheel. It has a black seat, handlebars, and a kickstand. The word "Chibi" is written on the side of the fuel tank.

**2000cc Chibi**

Engine Type	Single-cylinder, carburetor	Weight	110 lbs (50 kg)
Max. Horsepower	10.5 (15.5 hp)	Top Speed	100 mph (160 km/h)
Transmission	5-speed	Drivetrain	Chain drive
Brakes	Disc front, drum rear	Wheels	18" front, 14" rear
Seat	Black vinyl	Storage	Under-seat storage
Accessories	Headlight, horn, mirrors, etc.	Options	Custom paint, etc.
Price	\$1,299	Availability	Available in the U.S.
Manufacturer	Chibi Inc.	Address	1000 Chibi Dr., Chibi, CA 94505
Phone	(916) 444-1111	Fax	(916) 444-1112
Website	www.chibi.com	E-mail	chibi@chibi.com

out a couple of dents in the stainless steel front fender before polishing it up. The exhaust baffles had rust holes in places, and Joe cut out the affected metal and welded in patches before painting them black; the heat shields are factory original stainless steel, polished in Joe's shop. Joe's brother, Jason, painted the gas tank, oil tank and side panel as close to the original Imperial Gold color as possible. "Most of that bike is factory original parts that have been cleaned and polished," Joe says. "Even the taillight lens and the bulb in the headlight are original."

A sticking point in the restoration was locating a correct seat cover. Carlos hired someone to make a replica, but wasn't



High pipes on the Mach II SS suggest offroad ability, but were just following the then-current rage for enduro-styled bikes.

me a fair price, and said I'd have it in two weeks. Well, he delivered. And it looks great."

This is Carlos' first 2-stroke motorcycle, and to play it safe, he decided to bypass the automatic oil injection system in favor of running premixed gas and oil; he's quite happy with how it runs. "First or second kick

and it'll fire up, and it's a screamer on the road," Carlos says. "Get up in the power band and it just wants to go. It responds immediately, and it's a blast riding through a canyon with a twisty road — she goes right through it."

It's too bad Bridgestone didn't stick to motorcycles, because if the Mach II SS is any indication, they built some of the best in the business. And that's no BS. **MC**

happy with the result. "Joe was nearly done, and I thought the build was in jeopardy because I couldn't find someone to make an accurate cover with the regular vinyl around the bottom and the crushed suede on top," Carlos says. "But, on many forums people were recommending a guy in Thailand, so I sent him what was left of the original cover for him to replicate. I thought it was a scam, because he gave

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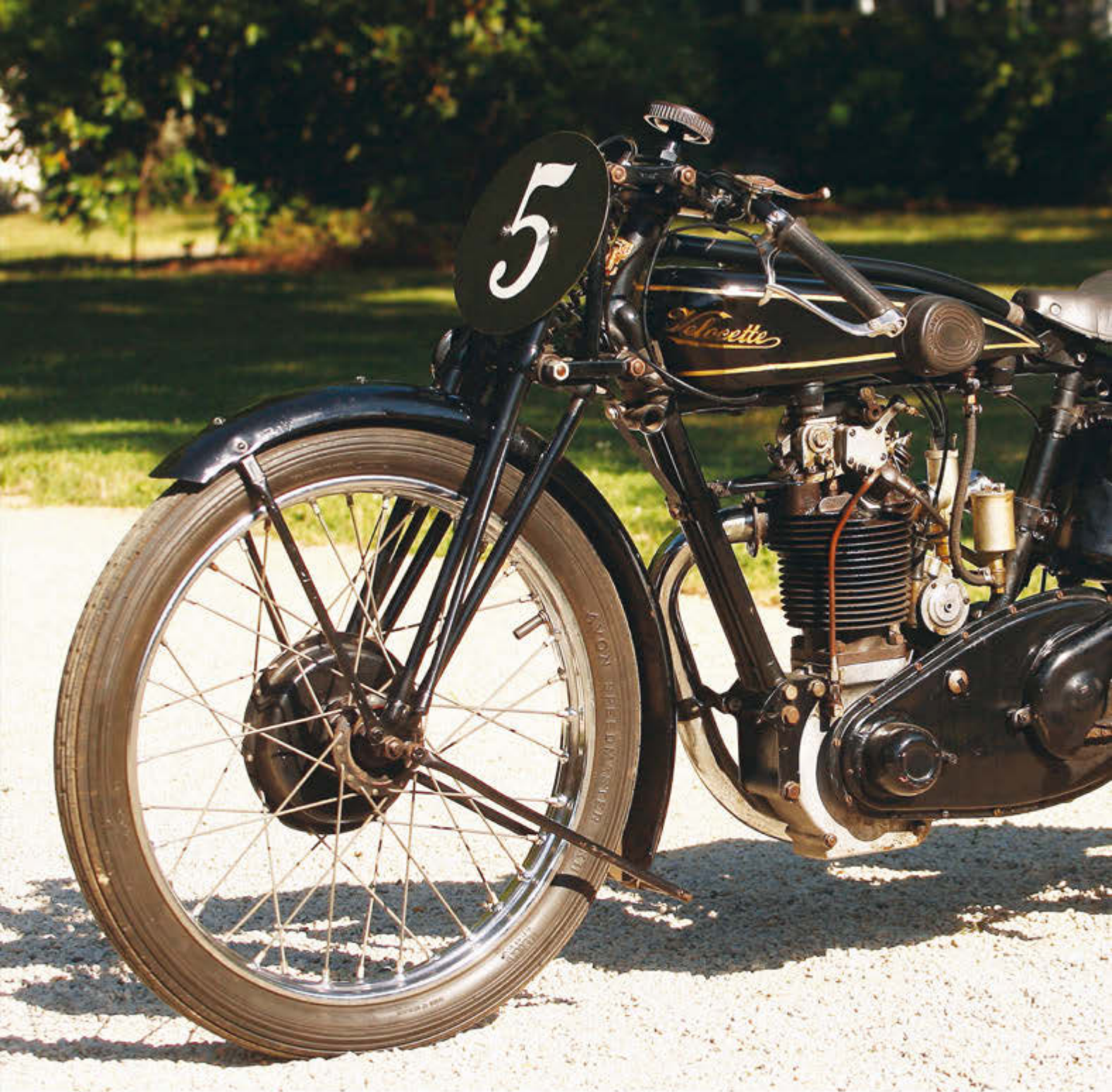
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# MYSTERY BIKE

Velocette KSS Mark 1

Story by Alan Cathcart  
Photos by Kel Edge



The United States can surely have no more dedicated an Anglophile motorcyclist than collector Jeff Craig. Craig has an enviable collection of British bikes, kept in the picturesque setting of an 18th-century house in the beautiful Bucks County scenery north of Philadelphia, Pennsylvania. And they're not museum pieces: Craig regularly exercises his bikes on local roads and at rallies as far afield as Canada and Virginia.

A mix of the best of period Velocette parts, Jeff Craig's Velocette KSS Mark 1 was likely built as a "rule beater" for vintage racing in the late 1950s or early 1960s.

Back when I first met Craig, he was a fellow bike freak I had teamed up with to share a flat when he moved to London at the end of the Swinging Sixties. Craig toured Europe several times on a BMW R69S, and became a fan of German reliability and shaft drive, despite once being pulled over by a traffic cop in Lisbon who was concerned by the amount of smoke pouring out of the British-registered bike's right exhaust. The officer was kind enough to lead him to the Portuguese police motor workshop and supply him with a valve off their parts shelf, as the police there used similar BMWs at the time.

### The mystery of a collection

A former dirt oval flat tracker in the U.S., Craig also road raced in the U.K. with the British Motorcycle Racing Club. He also bought an unrestored Brough Superior SS100, which he rode several thousand miles in the U.K., and continued to ride after he shipped it back home to Pennsylvania. But even before that, Craig was an avid enthusiast of British motorcycle engineering, and Nortons and Velocettes in particular.

One very special motorcycle in Craig's collection is a mystery bike whose origins still puzzle its owner some 30 years after he acquired it. It's a vintage period cammy Velocette special, which Craig purchased in 1981 from an elderly American classic car enthusiast, who had bought it in Britain 12 years earlier in substantially the form it's in today. The story of how Craig came to own the bike is quite a tale.

"The phone rang one Sunday morning, and out of the blue I heard a voice asking if I'd be interested in buying a Mark 1 KSS Velocette," Craig says. "The owner told me he'd had three heart attacks and couldn't start it anymore, but he wanted it to go to a good home and had heard I was interested in Velos. The asking price seemed very fair, so I agreed to go up to Long Island and take a look at it."

The voice at the end of the phone turned out to belong to aeronautical engineer Alec Ullman, a legendary figure in North American motorsport as the founder of the Sebring race track in Florida, and promoter of the first U.S. Grand Prix Formula 1 race, which was held there back in 1959. Ullman was the proprietor of a fine collection of vintage cars and motorcycles, housed in his country estate in New York. "He met us in the main square of a little Long Island town in the Type 40 Bugatti coupe he used as an everyday car," Craig says. "I felt I was stepping into a dreamland when I saw that the car he used for special occasions was a Hispano-Suiza 'King Alfonso XIII' limousine, which even back then was a \$1 million car! Anyway, the Velocette looked fine and started first pop, so I wrote him a check, loaded it in the van and drove home."

Back at the ranch, a closer look at the Velo revealed some detail discrepancies, starting with the frame, which was evidently a 1920s-vintage item. The single overhead cam KSS engine (standing for Kamshaft Super Sports, the "K" denoting the Germanic origins of the Goodman — formerly Guttemann — family that owned Velocette) wore number 4938 and appeared to be a later item. Moreover, the front end wore strutted Webb girder forks, which Velocette didn't introduce until 1929, when they were fitted to the KTT Mark 1 (Kamshaft Tourist Trophy) racers to replace the more flimsy Brampton girders used on earlier production models. The gearbox, too, seemed to be a racing component, for although a kickstart



## VELOCETTE KSS MARK 1 SPECIAL

**Engine:** 348cc air-cooled OHC single, 74mm x 81mm bore and stroke, 8.5:1 compression ratio, 25hp @ 6,000rpm

**Top speed:** 80mph

**Carburetion:** Single 1-3/16in Amal

**Transmission:** 4-speed, chain final drive

**Electrics:** BTH magneto ignition

**Frame/wheelbase:** Dual-downtube w/engine as stressed member/55in (1,397mm)

**Suspension:** Webb strutted girder forks front, rigid rear

**Brakes:** 7in (178mm) SLS drum front, 8in (203mm) SLS drum rear

**Tires:** 3 x 21in front and rear

**Weight (w/oil, no fuel):** 260lb (118 kg)



was fitted when Craig bought the bike, Ullman had acquired it with a blanked-off end-plate, which Craig refitted, and in so doing observed the magic letters "TT" stamped on the mainshaft. And that big wrap-around oil tank, with its left-side filler, seemed surely to be a KTT racing component.

More surprises were in store when Craig first rode what he was increasingly certain was a period Velocette competition special. Ullman had told him the gearbox was a three-speeder, as all KSS models of the pre-1930 vintage period were. "I shifted into third, wound the throttle hard open and thought to myself, 'Is this all there is?'" Craig says. "Just for the hell of it I thought I'd try for another gear, and sure enough I found one and the bike took off again, with me holding on for dear life!"

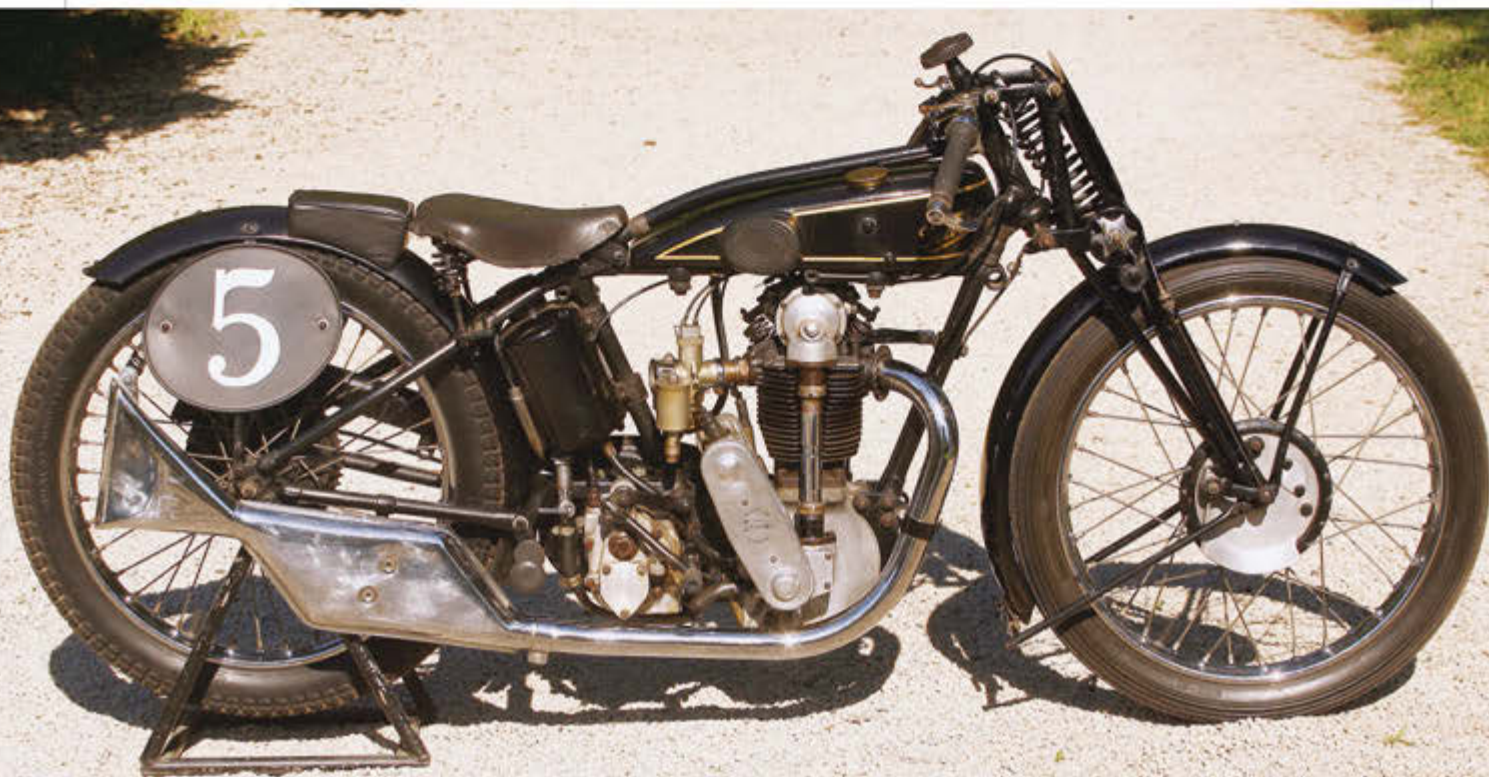
### Finding answers

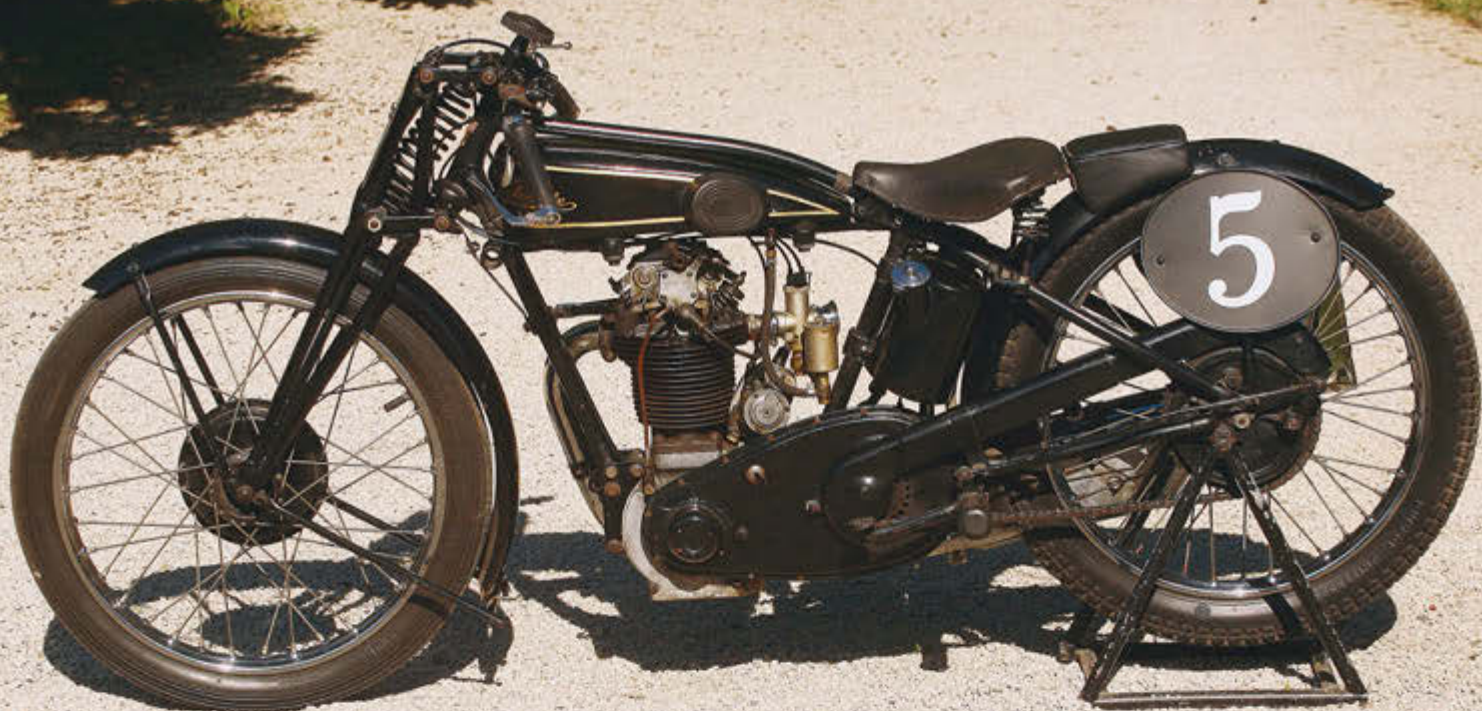
Like so many other Velo fellows around the world, Craig turned for assistance to that font of knowledge of anything to do with the products of the British company's Hall Green

factory, marque specialist Ivan Rhodes. Back came the reply by return air-mail: He was indeed the owner of "a delightful period special, with mainly KSS parts, and some KTT fittings." According to the factory records in Rhodes' possession, the engine had

come from a 1933 model KTS (Kamshaft Touring Sport) road bike, a street version of the KTT racer that had been delivered in February 1934 to a Mr. Bushell of Bolton, Lancashire, England, while frame number 2940 was a 1929 component belonging to a KN model furnished in December of that year to a Mr. Poole of Wolverhampton, England. The marriage of the two appears to have been consummated at least by the mid-1960s, when, according to invoices obtained by Ullman when he bought the bike in 1969 near Blackpool, Lancashire, England, a previous owner was one Mr. A. Mawdsley of Southport, England, who seems from all the bills to have spent quite a lot of money on various bits and pieces for it.

The Mark 1 KTT was the first in a long line of Velocette production racers descended from the company's first





overhead cam machine, which debuted in the 1925 Isle of Man Junior TT. Previously best known for their range of efficient but scarcely performance orientated 2-stroke lightweights, Velocette's entry into the racing arena with a 348cc 4-stroke caused some surprise, though the subsequent retirement of all three machines entered did not.

Velocette obviously profited from the experience, for the following year its works team returned to register the first ever TT victory for an overhead camshaft machine when Alec Bennett won the 350cc Junior TT at record speed on his factory entry, repeating his victory in 1928, with teammate Freddie Hicks the winner in 1929. In the meantime, Velocette rider Frank Longman had won the 1927 French 350 GP to score the firm's first of many victories outside Britain.

This success encouraged the Goodman family, which owned Veloce Ltd., makers of the Velocette, to produce the first genuine production racing motorcycle (as opposed to a tuned roadster) to be offered for sale to the general public. The Mark I KTT appeared in 1929, and it was in every way a customer version of the company's TT-winning works racers. During the 1930s, the KTT was gradually updated and refined, scoring hundreds of race wins all over the world in the hands of its satisfied customers. Thanks to the capacity for original thought of chief engineer Harold Willis, who gave the world the "double-knocker" epithet for twin overhead camshafts, Velocette was in the vanguard of technical development in the prewar era. Velocette was the first to fit positive-stop foot gear change, soon

to be universally adopted, and they were among the first to use what was then called a "sprung frame" (with rear suspension) and again one of the first to use coil valve springs and to enclose them, which greatly added to the clean look of their engines — both before being ridden and after.



### The KSS

The Velocette KSS was the road version of the KTT, and the KN model was effectively an improved KSS with a larger Hoffman 13-roller bearing big-end and a connecting rod suitably modified to accept the larger big-end outer ring — a modification also adopted on the early KTT Mark I racers. The fully brazed tubular-steel KN frame on Craig's bike is fitted with one of the last flat gas tanks made by Velocette before they moved to the saddle tank from 1930 onwards, as well as that KTT racing-style oil tank. It uses 3 x 21-inch tires front and rear just as on the KSS models of the period, but the strutted Webb forks, extremely stiff and rigid but almost impossible to repair once damaged (which accounts for their rarity today), are certainly a KTT racing component. The somewhat small 7-inch single-leading-shoe front brake, with its water deflector on the underside, is a KTS part, while the rod-operated 8-inch rear drum was used on several different Velocette models.

The engine of Craig's Velocette special is an unmodified KSS unit,



The Velocette breathes through a dual-float 1-3/16-inch Amal racing carburetor (above). Stock single overhead cam KSS engine runs exposed valve springs.

"Once it's singing along in top gear, this bike perfectly captures the essence of sporting vintage motorcycling," tester Alan Cathcart says.

with drive to the single overhead cam via a vertical shaft and bevel gears, with the valves running in bronze-alloy guides and fitted with coil springs. Phosphor-bronze bushes are employed for the one-piece valve rocker arms mounted on eccentric spindles, and if Craig ever gets around to taking a look inside, he expects he may find some tuning work, for a competition BTH magneto and a period racing 1-3/16-inch Amal carburetor are fitted.

And then there's that gearbox: 4-speed transmissions were adopted for the KSS range in 1933, so it's possible this could have belonged to the engine all their respective lives. The box is fitted with the positive-stop mechanism for the foot-operated gear change invented by Velocette's creative designer Harold Willis, a feature that first appeared on the KTT customer racing model that debuted in Mark 1 form in 1929. What appears to be an oil bath primary case is in fact simply an enclosure for the dry clutch and chain primary drive.



## On the move

Firing up the Velo in the time-honored run-and-bump manner for an enjoyable spin around the quiet lanes of Pennsylvania's Nockamixon State Park on a warm summer day requires only a touch of choke, and about half the available ignition retard. There's a fair degree of vibration as the engine climbs towards peak revs of about 6,000rpm in top gear, which is good for just over 80mph according to the speedometer of

the Craig family's following Morgan Plus Four sports car — there are no instruments fitted to the bike.

The down-for-first right-foot shifter works beautifully by period standards — a big improvement on a hand shifter, this was the first production attempt at delivering that — although in the lower three gears there's an occasional snatch under acceleration, which possibly implies worn engaging dogs. But once it's singing along in top gear, with a healthy crack coming from that lovely Brooklands can, this is a bike that perfectly captures the essence of sporting vintage motorcycling.

The steeply dropped bars, clad with well-used Velocette grips, permit a purposeful stance, allowing you to really ride the machine quickly. But if you do, get ready to sit up in good time to stomp on the rear brake foot pedal to slow from any kind of speed, as the front brake is pretty useless, leaving its rear counterpart to do all the hard work stopping a bike weighing roughly 260 pounds with oil, but no fuel.

Surprisingly, perhaps, I found the handling of the dual-downtube open-cradle frame to be excellent, even over the occasional bumps in the road, and while quite slow, the steering delivered via the 21-inch front wheel is pretty light as well as stable. But I was glad of the large André



Racing bike, 1930s style: The Velocette KSS Mark 1 is equipped with all it needs to run fast and no more.



Nice pair: Owner Jeff Craig with the Velocette KSS Mark 1 to the left and his 1948 KTT Mark 8 to the right.

owning a cammy Velo with exposed valve springs, a hazard only partially cured by liberal applications of asbestos string.

It seems probable that Craig's Velocette KSS Mark 1 special may have been built as a rule beater for vintage racing in Britain in the late 1950s or early 1960s, using the best eligible period Velo components, very much along the lines of the Brooklands machines ridden by factory ace Freddie Hicks, but with a foot gear change.

As such, the KSS Mark 1 makes a perfect bookend to the other

Velocette in Craig's collection, a completely original and unrestored 1948 KTT Mark 8, whose history from new is documented ever since it was delivered that year to the company's Philadelphia dealer, and later raced in the northeast U.S.

And while Craig would obviously prefer to know more about the origins of his mystery bike, like other true motorcycle enthusiasts his only concern meanwhile is the enjoyment he gets from riding it. Me too! **MC**

steering damper when, cresting a rise at fairly high speed, the front end got very light and the wheel began to flap about.

A touch more damper soon cured that, but such incidents were an indication of the surprising degree of poke available from the vintage 350cc engine, which did however show its age by the amount of oil flung about externally in spite of the coil springs, presumably exiting via the valve guides. This was apparently an occupational hazard back then of

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# HONDA'S 2-STROKE

1975 MT250 Elsinore





Story by Greg Williams  
Photos by Kurtis Kristianson

Given the conditions in which they were used, early motorcycles were, by default, dirt bikes — pioneer motorcyclists didn't have any choice in the matter.

They rode and struggled over gravel tracks and clay ruts, and had to contend with dust when it was dry and gumbo when it was wet. As the motorcycle industry progressed and roads improved, though, machines became specialized for the specific task at hand, whether that was commuting, fast road racing or playing in the dirt.

Offroad machines built by European companies such as Bultaco, CZ, Dot and Greeves dominated the dirt market in the 1950s and 1960s. By the late 1960s, however, Japanese manufacturers dropped a bombshell as they began introducing lightweight, easy-to-handle offroad bikes. Kawasaki, Suzuki and Yamaha all built 2-stroke powered dirt and enduro-style bikes, starting a craze for hitting the path less traveled. Hitting the competition circuit, Suzuki was the first Japanese manufacturer to claim the 250cc MX World Championship, in 1970.

### Honda's entry

By comparison, Honda had been building scrambler-style 4-stroke powered machines, such as the 305cc CL77, for several years. They even launched the dual-purpose 4-stroke, single-cylinder XL250 in 1972. Given Honda's tradition of 4-stroke production, it was something of a surprise when, in 1973, Honda unveiled the CR250M Elsinore, a dedicated and lightweight motocross machine powered by a 2-stroke engine. The CR250 weighed in at just 214 pounds and featured a 248cc 2-stroke, piston-port, single-cylinder engine with cast magnesium cases.

An aluminum gas tank sat atop a chrome moly frame and the machine rolled on alloy rims. Everything about the CR was built for the sole purpose of going fast and furious around the bumps, jumps and berms of a motocross track.

Immediately after launching the CR250, for the 1974 model year Honda unveiled the MT250, a dual-purpose version of the Elsinore. Yet according to the testers at *Cycle World* magazine writing in the August 1973 issue, there weren't many similarities between the two motorcycles.

*Cycle World* editors were particularly captivated by all of the lightweight goodies that made the CR such a winner, and lamented the fact the MT was given a mild steel frame, steel triple clamps and steel wheel rims. All that steel added extra weight, bringing the MT250 up to 280 pounds with a full tank of gasoline.

And while based on the CR250 engine, the mill in the MT250 was slightly redesigned for more pedestrian duty and was equipped with heavier flywheels to keep the dual-purpose unit happier at idle and running more smoothly through the rev range.

### MT250 details

Following typical 2-stroke technology for the era, the MT250 featured double transfer ports and a large exhaust window. A two-ring alloy piston traveled in a steel cylinder liner, and joined the steel connecting rod via a caged needle bearing at the piston and a caged roller bearing at the crankshaft. Four studs secured the head and barrel to the engine cases.

The MT250 incorporated a flywheel magneto for ignition and also included two small coils to provide juice for the 6-volt lighting system, with an alternator to charge the battery. Power was transferred to a 5-speed transmission through a geared primary drive and multiplate clutch running in oil.

The front suspension was borrowed from the XL250's parts bin and featured 7.1 inches of travel. Hubs, too, came from the XL250 and were constructed of alloy. Dual rear shocks anchored a steel swingarm, but typical of the time, their performance was less than commendable.

"It's unfortunate that we can't praise the rear suspension,"



### 1975 HONDA MT250

**Engine:** 248cc air-cooled 2-stroke single, 70mm x 64.4mm bore and stroke, 16.69hp @ 6,500rpm (period test)

**Top Speed:** 76mph (period test)

**Carburetion:** Single 28mm Keihin

**Transmission:** 5-speed, chain final drive

**Electrics:** 6v, flywheel magneto ignition

**Frame/wheelbase:** Single downtube steel cradle/56.5in (1,435mm)

**Suspension:** Telescopic forks front, dual shocks w/ adjustable preload rear

**Brakes:** 6.3in (160mm) SLS drum front, 5.5in (140mm) SLS drum rear

**Tires:** 3 x 21in front, 4 x 18in rear

**Weight (wet):** 280.5lb (127kg)

**Seat height:** 32.5in (825.5mm)

**Fuel capacity/MPG:** 2.2gal (8.3ltr)/45-55mpg

**Price then/now:** \$870 (1974)/\$1,200-\$2,500

*Cycle World* wrote in their review. "Honda could have easily used the superb rear shock units from the CR, but instead made one more switch. The items fitted in place on the MT model only perform satisfactorily up to a point ... and the point just happens to be the end of the pavement. In the dirt the 5-way adjustable shocks do lots of bottoming and slamming, making control more of a problem."

Honda replaced the aluminum gas tank found on the CR with a steel tank on the MT, and all other body panels, including fenders and side covers, were made of plastic, with the rear fender getting an inner brace to support the taillight.

The 1974 MT250s were finished in silver metallic with Daytona Orange stripes on the tank top. Model specifications

did not change dramatically for 1975, apart from the stripe changing to Tahitian Red. The side covers and the headlight shell went from silver to black, and the side cover decals became yellow and white. Fenders for both years were silver-painted plastic. For 1976 the MT250 was still silver, but





now had an Aquarius Blue stripe, while the fenders were white impregnated plastic.

Honda's MT250 Elsinore was always an attractive package, but sales were disappointing. Testers criticized the MT250 for being underpowered or over geared, and instead of perfecting the motorcycle, Honda quit production of the MT250 in 1976. Meanwhile, its CR motocross sibling remained in production until 2007, when Honda dropped all 2-stroke production. Honda's offroad family is currently represented by the 4-stroke CRF line of machines, available in a dizzying array of platforms to suit almost any style of riding, from mild trail excursions to fast track competition.

### Anthony Wiebe's MT250

Anthony Wiebe, a constable in the Royal Canadian Mounted Police, lives in Crossfield, Alberta, Canada. His first motorcycle was a 1974 Kawasaki 100 Enduro, purchased brand new for \$500. He rode it year-round for three years, using it to get to school and to his job pumping gas, before graduating to a Suzuki GT380 triple. "Since then, I've owned everything from Gold Wings to Harleys. I've always had a dual-purpose or a big motorcycle in the garage," Anthony says.

Forty-one years ago, when Anthony bought his Kawasaki, it was actually the Honda MT250 Elsinore that had captured his attention. Yet he never did buy one, and even after all of those



The 248cc 2-stroke single puts out almost 17 horsepower, but testers didn't feel that was enough for the 280-pound bike.



Owner Anthony Wiebe bought this MT250 with just 2,800 miles on the clock, but it was in need of a complete restoration.

other motorcycles, the MT250 was still alluring.

Three years ago, Anthony found himself with a little extra time — he works five days on and four days off — and he started looking for an Elsinore. “I’d admired that particular motorcycle for four decades, and that was it,” Anthony explains. “The time was right, and I wanted to get one.” He wasn’t looking for a project, but the 1975 MT250 he found for sale online in Idaho had sat outside for many years. Although it showed only 2,800 miles on the odometer, it wasn’t running, the seat was rotted out, and the entire machine was covered in surface rust. “I emailed the seller, told him I wanted it and that we’d be down to pick it up.”

Anthony drove to Idaho, paid \$800 for the project, and loaded it in the back of his truck. Once home, his initial goal was simply to get it running. There was plenty of rust in the gas tank, and the kickstarter wasn’t working. He knew the engine wasn’t seized, because he could put it in gear and roll it over compression, but he thought it best to strip the MT250 down to the last nut and bolt, and start afresh.

First on the to-do list was the gas tank. Anthony bought a coating kit, following the package directions closely to clean out the rust and etch the metal before applying the sealer. After that, he sanded out a couple of scratches on the plastic fenders before delivering them to Shorty’s Crossfield Garage for paint. He found color codes to match the original Honda silver and Tahitian Red on an Internet forum, and Anthony says Shorty’s nailed the spray job.

Next came the frame. It was

in good shape, and was media-blasted together with the swingarm, kickstand and various other small pieces before being delivered to Kojah Powder Coating ([kojahpowder.ca](http://kojahpowder.ca)) in Cremona, Alberta, for a satin black finish.

“I tried to rescue as much as possible of what was originally on the bike,” Anthony says, “but the wheel rims were too badly rusted to be saved.” He stripped the wheels to the hubs, polished the alloy and installed new bearings, and then searched high and low for replacement steel rims. Unable to locate any, he contacted Buchanan’s Spoke & Rim ([buchananspokes.com](http://buchananspokes.com)) and ordered a set of aluminum rims and spokes to match. He took all the wheel parts to the Old Motorcycle Shop in Calgary ([oldmotorcycleshop.com](http://oldmotorcycleshop.com)), where the crew laced and trued the wheels, and installed Vee Rubber Super Trail Star tires ([veerubberusa.com](http://veerubberusa.com)).

With the frame and wheels back in the garage, Anthony detailed the forks and polished the alloy sliders, putting everything back together with new seals. The fork tubes were surprisingly rust free. He disassembled the rear shocks, had the springs powder coated, then reassembled them with new mounting rubbers.

Turning to the engine, he split the cases, cleaned and checked them, and once everything was confirmed to be in good condition, he sprayed the castings with a fresh coat of high-temperature satin black paint. As the bottom end went together, he replaced every bearing and seal. Because of its low mileage the engine was in fair condition, but Anthony installed new piston rings and honed the cylinder, which



Anthony had the period accessory rear rack rechromed, along with the handlebars.

After some eight months of work, this MT250 is back on the road and looking lovely.

he also painted, together with the head.

Worried about parts availability before he started the project, Anthony was pleased to find most everything he needed. "I made a list of all the Honda parts I'd need, and I had great help from Medicine Hat Moto-Sports Ltd.," the local Honda dealer in Medicine Hat, Alberta, Canada, Anthony says. "They worked with me to find what they could." He also found parts online, including a set of brand-new gauges and switches, plus cables, rubbers and light lenses. "While working on the bike, I soon came to the conclusion that I wanted the whole thing to be new," he says.

A fresh seat cover was included with the project, and after locating a pan to replace the rusted out original, Anthony and his wife, Melanie, installed the new vinyl over new foam. Anthony wanted to save the period accessory rear carrier, which was on the bike when he bought it, so he sent it to Alberta Plating Ltd. (albertaplating.com) together with the handlebars for fresh chrome.

After some eight months, Anthony completed the MT250, his first motorcycle restoration, by cleaning and installing the original factory wiring harness. Once done, it was finally time to



see how it ran, and it fired up without any fuss. He now uses it to spin around town. "It's not as powerful as I thought it would be," Anthony says, "but it's certainly perky, and it's noisy!"

Riding the Honda is satisfying, but what Anthony really enjoyed most was the restoration process, which he says he found to be therapeutic. For now, the street and trail MT250 will remain an asphalt-only rider, and it won't see any of the dirt for which its other half was originally intended. **MC**

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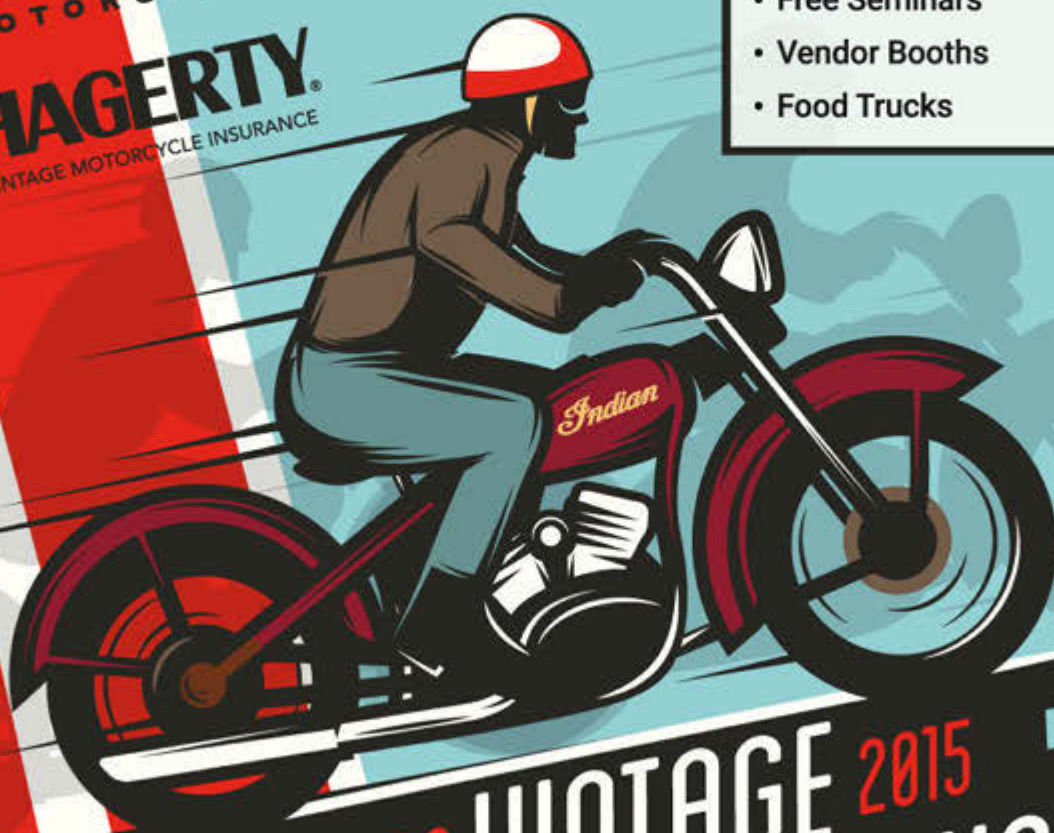
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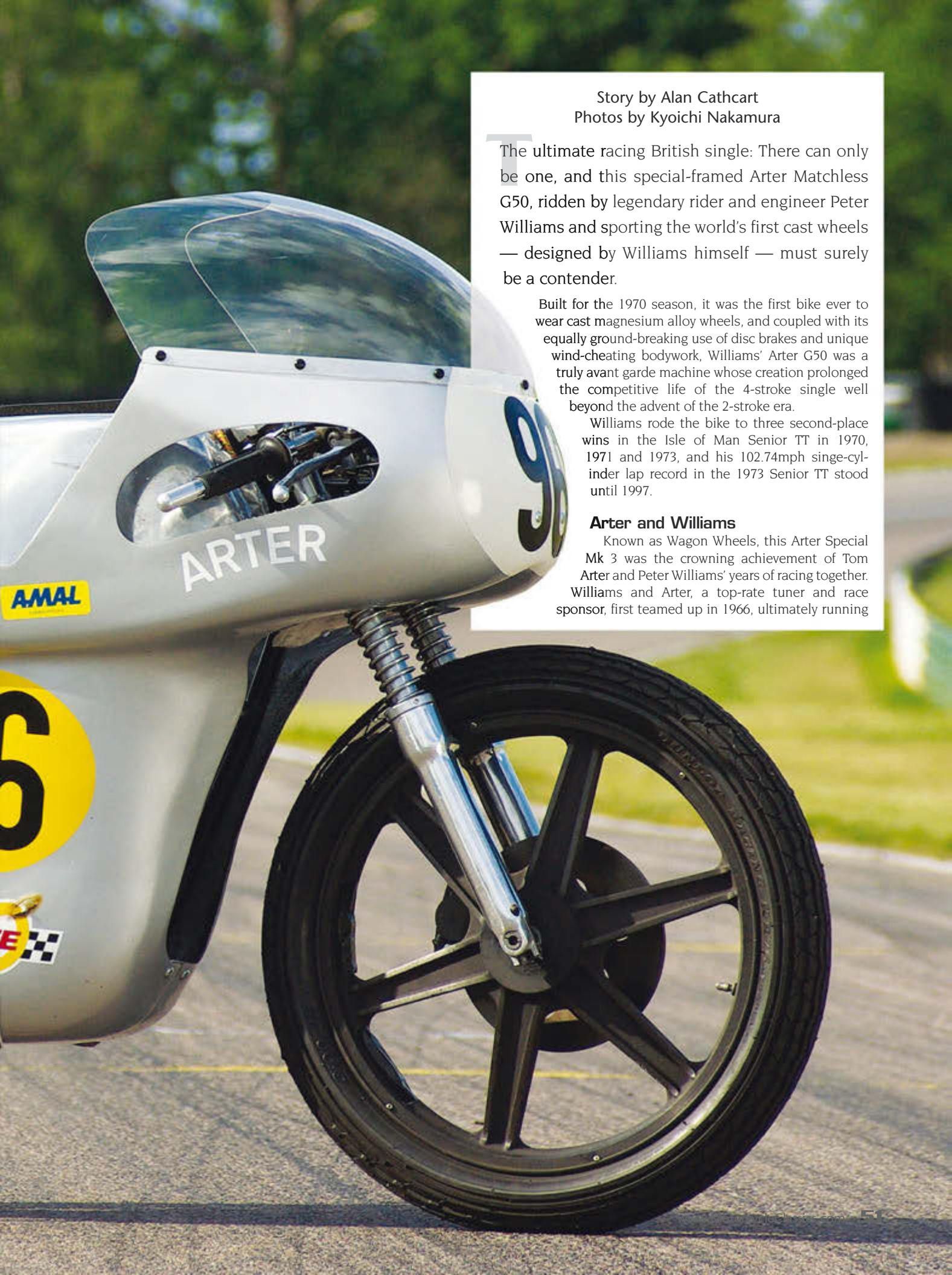
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# WAGON WHEELS

The Arter Matchless G50





Story by Alan Cathcart  
Photos by Kyoichi Nakamura

The ultimate racing British single: There can only be one, and this special-framed Arter Matchless G50, ridden by legendary rider and engineer Peter Williams and sporting the world's first cast wheels — designed by Williams himself — must surely be a contender.

Built for the 1970 season, it was the first bike ever to wear cast magnesium alloy wheels, and coupled with its equally ground-breaking use of disc brakes and unique wind-cheating bodywork, Williams' Arter G50 was a truly avant garde machine whose creation prolonged the competitive life of the 4-stroke single well beyond the advent of the 2-stroke era.

Williams rode the bike to three second-place wins in the Isle of Man Senior TT in 1970, 1971 and 1973, and his 102.74mph single-cylinder lap record in the 1973 Senior TT stood until 1997.

#### **Arter and Williams**

Known as Wagon Wheels, this Arter Special Mk 3 was the crowning achievement of Tom Arter and Peter Williams' years of racing together. Williams and Arter, a top-rate tuner and race sponsor, first teamed up in 1966, ultimately running



## ARTER SPECIAL MK 3

**Engine:** Matchless 496cc air-cooled SOHC single, 90mm x 78mm bore and stroke, 10.75:1 compression ratio, 53hp @ 7,250rpm

**Top speed:** 148mph

**Carburetion:** 1-1/2in Amal GP2

**Transmission:** 6-speed Schaffleitner, chain final drive

**Electrics:** Lucas 2MTT magneto

**Frame/wheelbase:** Chrome-moly dual-downtube steel cradle/56in (1,422mm)

**Suspension:** Norton Roadholder telescopic forks front, chrome-moly oval-section swingarm and dual Koni shocks w/adjustable preload rear

**Brakes:** Single 10in (254mm) Girling cast iron disc front and rear

**Tires:** 3 x 19in front, 3.5 x 19in rear

**Weight (dry):** 292lb (132kg)



Oval slots were cut into the sides of the fairing to allow space for the bar ends to rotate (far left).

a pair of 350/500cc bikes fitted with AJS/Matchless 7R/G50 engines mounted in special Reynolds frames built by master tube bender Ken Sprayson for John Surtees. Surtees never used them because of his move to car racing.

Williams had earlier struggled to make his mark on a standard G50 Matchless tuned by Arter — a fact he admits to feeling rather shameful about, given that it was his father, Jack Williams, then AMC's chief engineer, who had been responsible for the creation of the G50 in the first place.

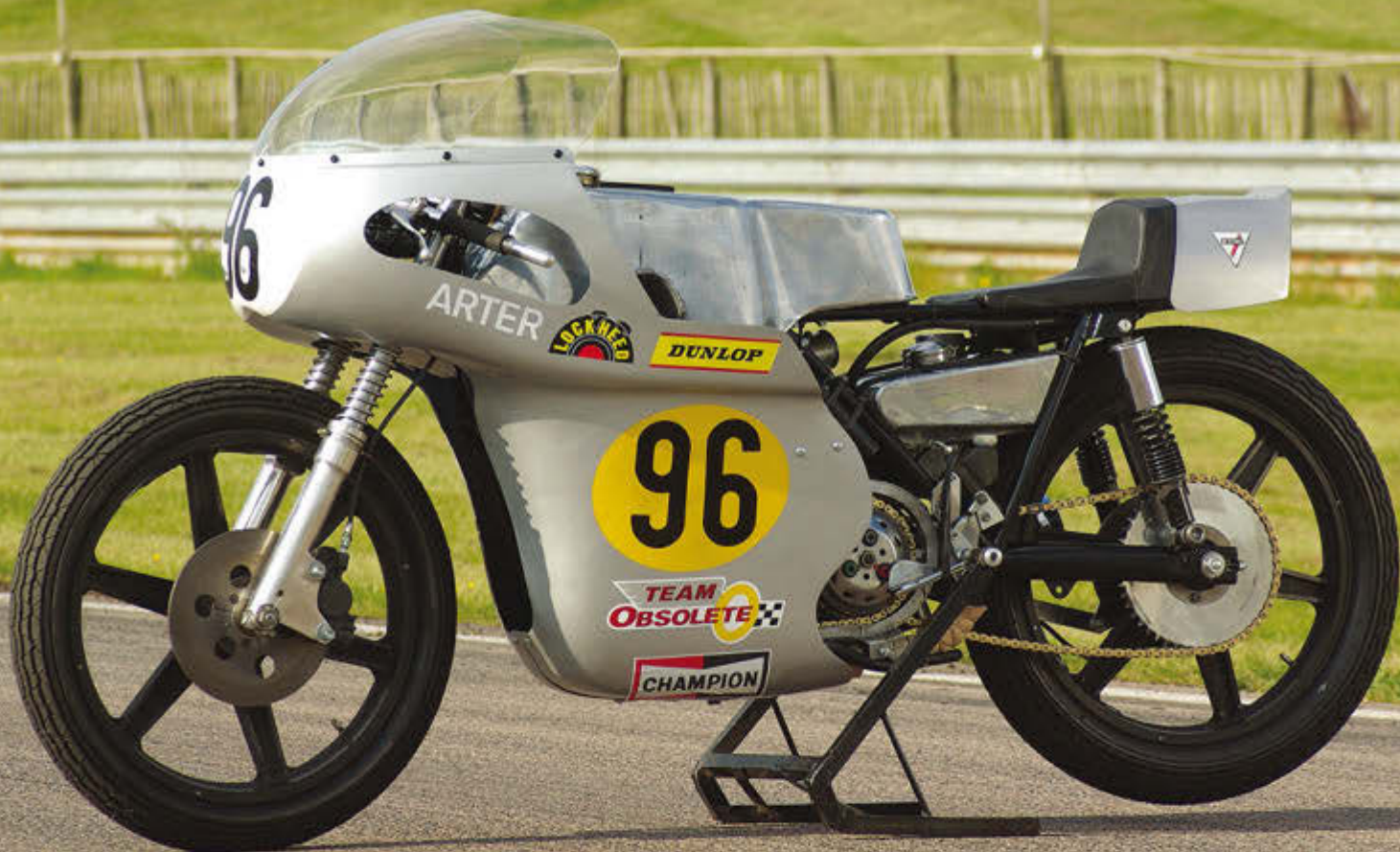
"I felt disloyal to my father, because although the engine was his first love, the layout of the bike was his, too," Williams says. "The shape of the fuel tank and seat that influenced the riding position and steering were not to my liking. I couldn't put my finger on why that was. I prided myself that I could ride anything

from 125cc to 750cc and win on it, but I didn't like the standard 7R/G50 bikes."

That was resolved by Arter's acquisition of the Surtees Specials, as the Arter Matchless Mk 1 duo were originally known, and it was on these that Williams grew to world prominence, becoming a star of British short circuit racing. A

serious crash in the 1967 East German GP at the Sachsenring brought his season to an abrupt end, and during the year it took him to recover, he began experimenting with cast magnesium wheels and disc brakes, the latter designed by Colin Lyster. At the same time, Arter commissioned two subtly different new frames from Sprayson to create the Arter Special Mk 2, in both





350cc and 500cc guises. These never went as well as hoped, so to replace them, Arter commissioned two new frames from racing car chassis constructor Grand Prix Metalcraft in north London. Their design broadly followed the twin-loop duplex cradle format of the previous Sprayson-built frames, but used narrower-gauge 1-inch tubes rather than the 1-1/8-inch diameter tubing of the Reynolds chassis. This saved weight, and in conjunction with an oval-section swing-arm — another motorcycling first — also increased the overall stiffness-to-weight ratio. Fitted with ultra-slim full-fairing bodywork, cast magnesium wheels and a single disc brake at each end, the 1972 version of the Arter Special Mk 3 weighed in at 292 pounds dry.

Williams used a Norton Roadholder front end and twin Koni shocks, adjustable for damping and preload, at the rear. He redesigned the left fork slider to mount an AP-Lockheed twin-piston brake caliper gripping a 10-inch Girling cast iron disc, with an identical brake combo at the rear. This was a hybrid setup consisting of a large cast magnesium wheel hub housing the disc and its caliper, with the alloy rim wire-laced to the hub. "I wanted consistency in braking ... as is certainly not the case with drum brakes," Williams says. "The problem with those early discs was that removal and reassembly of the disc, caliper and wheels when you wanted to change the tire was a real pain. My system addressed that quite well, in conjunction with the cast wheels."

The six-spoke cast magnesium wheels, manufactured by Stone WallWork in Wolverhampton, U.K., made the Arter Special Mk 3 stand out in race paddocks. These were originally fitted to make it easier to mount the disc front brake, but without any weight saving. However, in 1970 Dunlop OK'd running their tires without inner tubes, even the triangular race tires the bike was wearing, in pursuit of reduced rolling resistance. This offered enhanced suspension compliance via reduced unsprung weight, and the lightweight package improved steering thanks to its diminished gyroscopic mass. Leaving out the inner tubes also improved acceleration and braking. Their lower weight meant less inertia to overcome in starting the mass of the wheel rim moving under acceleration, as well as offering a similar benefit in stopping it. The same benefits apply today to carbon fiber wheels.

On this later version with a conventional disc, the front caliper was mounted behind the fork leg to improve steering by bringing the center of mass closer to the steering axis. Over time, the space between the fork legs was narrowed to bring the handlebars closer together to reduce wind resistance, bringing the rider's hands and arms closer together. To make it work, oval slots were cut in the sides of the fairing so it could



**Razor thin:** Racer and engineer Peter Williams preferred narrow bars, as they reduced wind resistance.

Peter Williams at Governor's Bridge aboard the Wagon Wheels Arter Matchless G50 at the 1970 Isle of Man Senior TT.

wrap around the rider's upper body, while still giving space for the bar ends to rotate. "I've always liked narrow handlebars because they give less wind resistance," Williams says. He concocted a stretched-out riding stance to allow him to wrap his 6-foot frame around the bike, and commissioned Colin Seeley's aluminum craftsman John Pearson to make two fuel tanks for the bike — a small 1-gallon tank for short circuits and a larger tank for GP and TT racing. Pearson also crafted aluminum ducting to shovel cooling air onto the engine, while at the same time allowing the frontal aperture of the fairing to be reduced in the interests of aerodynamics.

### Riding Wagon Wheels today

The chance to try the bike out for myself came at twisty Mallory Park — a handling circuit par excellence, but far removed from the fast open spaces of tracks like the TT course where the bike excelled. Yet the bike was agile and nimble enough for Williams to catch and pass Giacomo Agostini's MV triple in the 1972 Hutchinson 100 at Brands Hatch, leaving the Italian maestro to fall off in vain pursuit of the flying single.

When Tom Arter passed away in November 2005, the Arter Special Mk 3 was acquired by Team Obsolete's Rob Iannucci. But before shipping the bike across the Atlantic to New York, Iannucci had Mike Braid, a collector of fine British racing hardware who had been the intermediary in obtaining the bike from the Arter family, put the bike in proper order. It was then brought to Mallory Park for me to put on some shakedown miles — on its original cast magnesium wheels, which had been crack-tested and passed with flying colors.

Having Williams there to watch was invaluable, his advice helping me come to terms with what is a very unusual bike to



ride. Williams hasn't been able to ride a motorcycle since he was badly injured in a 1974 Oulton Park crash on the space frame John Player Norton, and he was visibly moved to see the bike he'd essentially been responsible for creating, and had achieved so much success with, in action once again.

Straddling the Arter in the Mallory paddock acquainted me firsthand with one of the most unusual riding positions in post-war motorcycling. The only other bike remotely comparable to sit on is the John Player Norton Monocoque, which Williams designed for the 1973 season using his 500cc racer as the paradigm. The bike is very low and slim yet feels relatively long, so you must squeeze into a very snug, semiforward reclining stance, with the seat quite far back and your arms reaching forward to the short, stubby handlebars. The bars position your hands very close together, next to the steering head, and your hands are partially obscured by the all-enveloping fairing. The Arter G50's riding position most reminds me of a modern-day track bicycle, with hands close together for maximum wind-cheating effect.

The radical stance was precisely tailored to suit Williams' 6-foot stature, and once out on the track it became apparent that the way to ride the Arter G50 is to mold yourself to it and stay tucked in, with your chest on the tank for all but the slowest of turns. Do that and it all works. The bike steers beautifully in big, sweeping corners, holding exactly the line you set for it thanks to its relatively long 56-inch wheelbase and what feels like quite conservative steering geometry.

Yet it's much less happy in slower turns, and I wasn't surprised to hear Williams say he fell off the bike once, at 5mph at Governors Bridge in the Isle of Man, where the low speed unwieldiness of the bike caught him out. Having your hands so close together reduces your leverage on the



Peter Williams (left) chases Giacomo Agostini during the Hutchinson 100 at the Brands Hatch Circuit in 1972.

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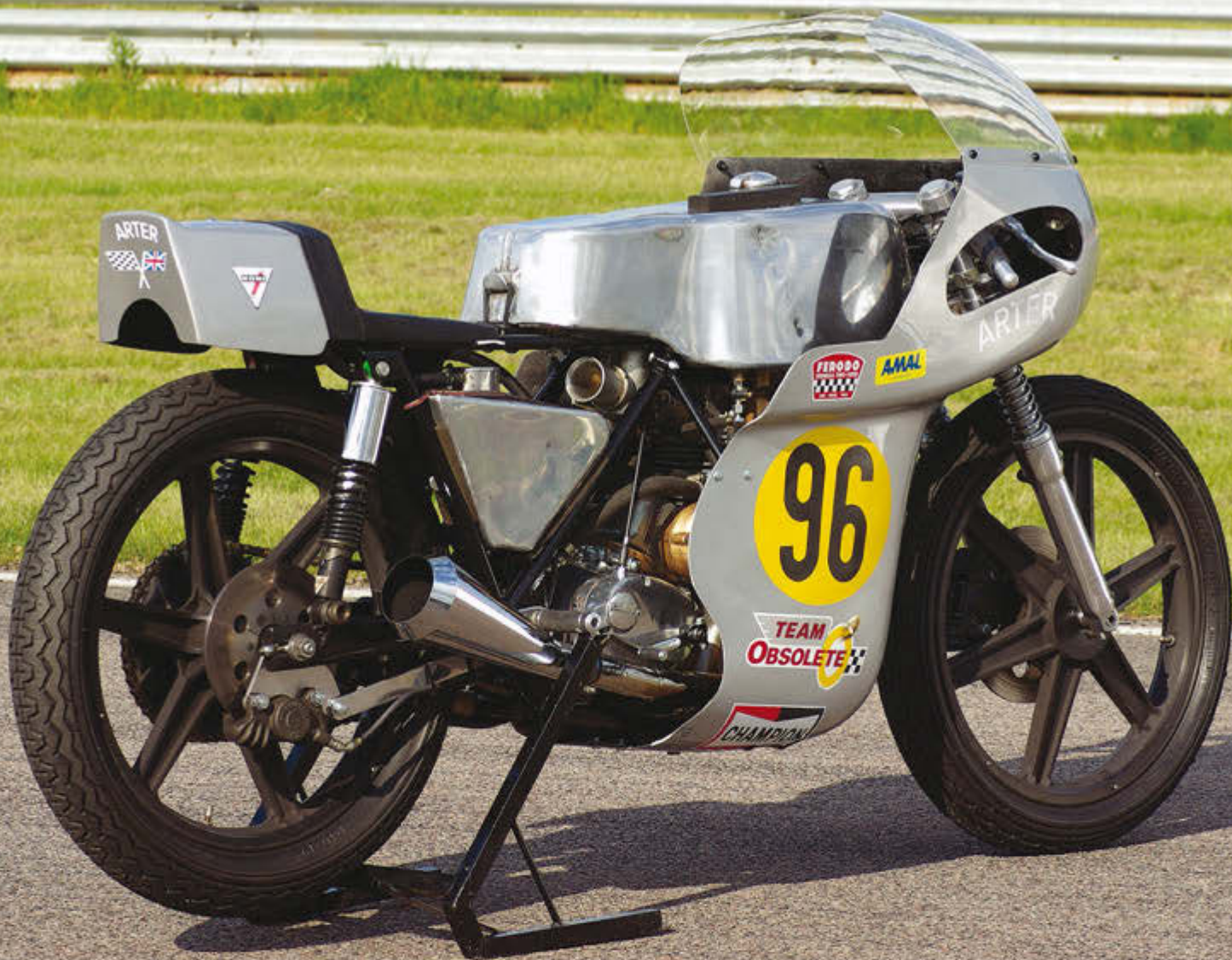
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bars, and there's only about 10 degrees of steering lock on the right and 15 degrees on the left. Then there's the knife-edge handling characteristics of the triangular Dunlop tires the bike has always worn. While these reduce drag to help maximize top speed, they make the bike a real handful on slower, tighter bends. However, turn-in is good, and the Arter G50 goes exactly where you point it entering a bend, although the fact you can't see your hands does take some getting used to — it feels remote and awkward to steer.

Williams' advice was to use wide, sweeping lines in turns — even tight ones — rather than squaring them off, a technique he honed in years of racing underpowered GP singles. The vital thing was to maintain corner speed, if necessary by getting both wheels drifting around turns. I'll never forget watching him drift the John Player Norton Monocoque at Silverstone. My heart was in my mouth, convinced that he'd narrowly avoided a big crash — until he repeated the same technique lap after lap, leaving me lost in admiration for the bravery and skill this required.

Wagon Wheels' geometry is geared to that objective, so while it isn't quite as nimble as you first expect it to be, in spite of being so narrow and low, it is superbly stable around big, fast turns. The Norton forks work pretty well, but by modern standards the twin Konis have limited travel and zero progression.

By the standards of 40 years ago, though, the Arter G50 must have made a great Isle of Man or Monza bike, relying on the low center of gravity to make it stable over bumps around faster

turns, and reasonably quick-steering once you'd mastered the proper technique. Wagon Wheels' fresh G50 engine first needed to be run in, but once it was — and running TT gearing presumably fitted at its last TT outing with Williams in 1973 — I could barely pull fifth gear on the sweet-shifting Schafleitner 6-speed gearbox, by some way the best transmission I've ever used on a bike with a non-unit gearbox like this one.

Even by the standards of 45 years ago, the downsized 10-inch Girling discs were a disappointment, however, their bite so underwhelming as to be pathetic, and response so wooden it gives trees a bad name.

While gripped by exactly the same benchmark Lockheed calipers of the era as the Ducati 750SS, they lack the bite of the Duc's larger-diameter cast-iron Brembo discs, leaving you to squeeze very hard on the lever to get any meaningful response, as well as stepping on the rear brake for maximum assistance. Even then Wagon Wheels tries to keep on rolling, which keeps up corner speed even better than you intended!

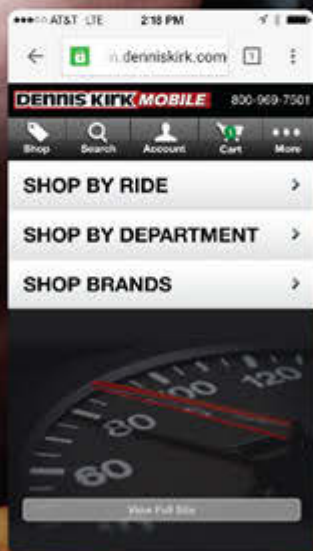
Yet in every other way, this motorcycle is a credit to the man who conceived and rode it, and his sponsor who underwrote its construction. It's a significant landmark in the evolution of two-wheeled chassis design, as the motorcycle on which separately-mounted hydraulic disc brakes and cast magnesium wheels made their debut, while fluttering the 4-stroke single banner so successfully against the Italian multis and 2-stroke invaders.

It was indeed the ultimate British single — the bike that did the most, with the least, 45 years ago. **MC**

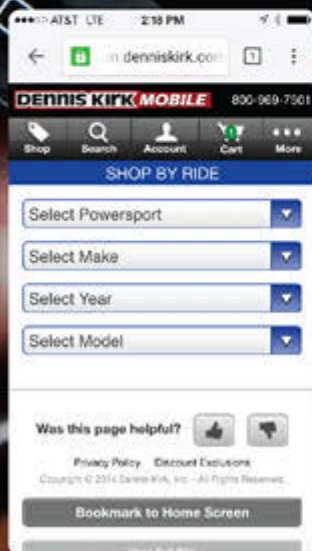
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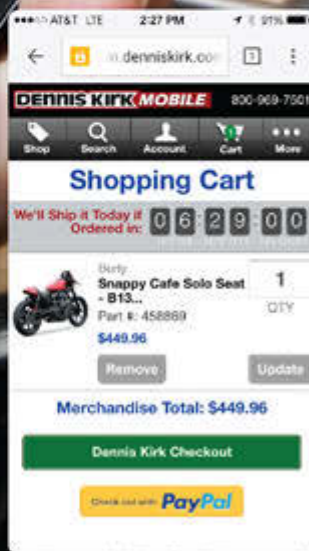
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**KENDA**

# RAPID TRANSIT

Honda's VFR750F Interceptor



Story and photos by Robert Smith

It may not be the longest running current production motorcycle in history — that honor goes to Harley-Davidson's Sportster — but if you went to your Honda dealer today and peeled the plastic off a 2015 VFR800, it wouldn't be that much different from the VFR750F that first went to market in 1986.



Along the way, the VFR750 won *Cycle World's* Best Sportbike award six times, while its basic design was extrapolated into the World Superbike winning VFR750R/RC30 and RC45. The VFR750 was born of disaster, yet went on to salvage Honda's reputation as a builder of reliable, high-quality motorcycles. How come?

### Rising tide

At the end of the 1970s, Honda's technical prowess was unchallenged. The company had created such extravagant engineering exercises as the flat-four GL1000, the 6-cylinder, 24-valve, double overhead camshaft CBX and the oval-piston NR500 Grand Prix racer. However, Honda's mainstream CB750 and CB900 were losing ground to the competition. So to compete with Suzuki's Katana and Yamaha's FJ1100, Honda upped the ante with a range of double overhead cam, 16-valve, liquid-cooled V4s.

First came the 750cc V45 Sabre cruiser for the U.S. market, and the sporty VF750S for Europe. Both had liquid-cooled, over-square engines of 70mm x 43mm, 6-speed transmissions and shaft drive. The engine's short stroke and the 4-valve heads with narrow included valve angles were all state-of-the-art for high-revving, high-power performance.

To demonstrate the potential of its new powertrain, Honda management decided to build a sport bike that could be homologated for the 750cc AMA Superbike class. The 1983 VF750F Interceptor was the result, and although based on the V45 Sabre, the Interceptor also borrowed from Honda's FWS1000 U.S. Formula 1 racer.

The VF750F used a perimeter frame of square-section steel tubes enveloping a strengthened 750cc V4. To allow for a shorter wheelbase and to give better weight distribution, Honda engineers tilted the engine back. The VF750F engine shared most components with the Sabre, though changes to cam timing and combustion chambers resulted in extra horsepower.

A more race-suitable chain final drive replaced the Sabre's shaft, while the number of gears in the transmission went, curiously, from six to five. Apparently, reconfiguring the final drive for a chain meant less room for gears. The transmission also included a "slipper clutch," with half the clutch plates driving the clutch hub through sprags, so the clutch was only 50 percent effective on the overrun.

The Interceptor's front suspension used an air-assist Showa fork fitted with Honda's TRAC (Torque Reactive Anti-dive Control) anti-dive system. Rear suspension was Honda's own Pro-Link with a fully adjustable air-assist Showa shock. Wheels were Comcast alloy — 16-inch front and 18-inch rear — fitted with floating discs, two at the front and one at the rear, each gripped by twin-pot calipers.

As well as the prodigious thrust provided by 77 rear wheel horsepower, testers noted that this was, perhaps for the first time, a Japanese Superbike with a chassis that really handled.

### Unexpected problems

Using essentially the same engine internals as the Sabre meant the Interceptor retained the former's chain drive to the

Fully restored to original condition, this 1986 VFR750F Interceptor belongs to Laf Young, who lives on the island of Maui, Hawaii.

four overhead cams. And that's where things started to go sideways. Within months of the VF750F's introduction, customers were returning to their Honda dealers with mechanical noise from the cylinder heads. Upon opening customer engines, technicians found excessive camshaft wear and disintegrating cam chain tensioners. Curiously, not all bikes were affected — which made solving the problem even more challenging.

Honda's response was a series of service advisories that tried to correct the issues under warranty. But the question still remained: What was the problem with the chain-cam engines? Many theories emerged, such as inadequate oil flow to the cams at low engine speed and careless valve adjustment.

A number of minor engine changes ensued, mostly aimed at improving oil flow to the cam boxes. There were also service bulletins entreating technicians to be especially vigilant about setting valve clearances. This may have helped with the cam wear issue, but it didn't resolve the cam chain/tensioner problem. Tensioners could disintegrate in just a



## 1986 HONDA VF750F

**Engine:** 748cc liquid-cooled DOHC 16-valve V4, 70mm x 48.6mm bore and stroke, 10.5:1 compression ratio, 82.55hp @ 10,500rpm (period dyno test)

**Top speed:** 144mph (period test)

**Carburetion:** Four 34mm Keihin CV

**Transmission:** 6-speed, chain final drive

**Electrics:** 12v, electronic ignition

**Frame/wheelbase:** Twin-spar aluminum beam w/ engine as stressed member/58.25in (1,480mm)

**Suspension:** 37mm air-assisted anti-dive telescopic forks front, Honda Pro-link single shock w/adjustable preload rear

**Brakes:** Dual 10.7in (272mm) discs front, single 9.8in (246mm) disc rear

**Tires:** 110/90 x 16in front, 130/80 x 18in rear

**Weight (wet):** 505lb (229kg)

**Seat height:** 31in (787mm)

**Fuel capacity/MPG:** 5.3gal (20ltr)/45-55mpg

**Price then/now:** \$5,298/\$4,000-\$7,500

few thousand miles, causing further engine damage. Eventually, suspicion fell on an even more fundamental issue. It turns out that for the chain-cam-drive engines, the camshaft towers were simply milled out to accept the camshaft and fitted with off-the-shelf locating caps. This could allow the camshafts to move, compromising the mechanical integrity of the valve train. A special factory tool to correctly locate the camshaft during valve adjustment made a big difference, but it was clear a complete redesign was necessary.

## Making it right

Honda's long-fought reputation for engineering excellence was going down the toilet, and drastic action was needed. Fortunately, they had the solution in house. Honda's FWS1000 racer and the European market VF1000R both drove their double over-

head cams by gear rather than chain, and there was an important note in the press information for the 1985 introduction of the VF1000R: The engine, said *Cycle* magazine, had "new cylinder head castings to provide more camshaft support."





Obviously, the gear-drive engines weren't susceptible to cam chain/tensioner problems, even though valve operation from the camshaft was identical. The big difference was, in the gear-drive-cam engines, the cam bushings were line-bored with the locating caps in place, eliminating the camshaft location issues found in the chain-drive engines. Announced in late 1985, the replacement for the VF750 would use the same system. The VFR750F Interceptor of 1986 was the result.

The new VFR750F engine used a 180-degree crank instead of the VF's 360-degree crank and featured six gears instead of five. New valve timing, revised carburetion and a bigger airbox increased power to a claimed 104 horsepower at 10,500rpm (though later dyno runs produced closer to 82 horsepower at the rear wheel).

The cams were driven by a "cassette" gear train running on ball bearings, operating individual rather than paired rockers with increased lubrication. The new engine went into a twin-spar aluminum frame with revised steering geometry, but with similar running gear to the VF750. The result was a weight reduction of 50 pounds, an 11.32-second quarter-mile at 122.11mph and a top speed of 144mph.

Driving camshafts by gear isn't without its own issues. Gear lash can make accurate valve timing more difficult, and timing gears are noisy (as owners of Meriden Triumphs will attest!).

To get around the lash issue, Honda used a spring mounted "scissor" gear system — essentially two gears side-by-side and slightly offset — on the cam drive gears, offsetting the teeth by roughly half of the pitch. This allowed the lash to be entirely taken up by the tension of the two teeth resting

together. The gear-driven cams went on to be a key feature of the later VFR750R.

A lot was riding on the VFR750F, and Honda was determined to get it right. And that they did. The 750 and later 800 Interceptors are widely regarded as some of Honda's best, and remain in production to the present — although the cams are once again chain driven.

### The VFR750F in racing

Though not designed as a race bike, the VFR750F inherited plenty of racing DNA from the RWS1000. In 1986, in one of its first outings, "Rocket" Ron Haslam took a standard VFR750F to third place in a Transatlantic Challenge race at the U.K.'s Donington Park race track. In the U.S., Fred Merkel and Wayne Rainey both contested the 1986 AMA Camel Pro series on VFRs, with Merkel taking the championship.

Riding Merkel's old bike, Bubba Shobert finished third in the series in 1987, and his consistency on the VFR helped earn him the AMA Grand National championship. In 1988, Shobert won three of the seven races to win the AMA Superbike Championship aboard that same VFR750.

Honda's racing division, HRC (Honda Racing Corporation), also built six prototype racers with special magnesium engine cases. The engines also had titanium valves and used flat-slide carburetors. The "6X" (as it was known) weighed less than 370 pounds and produced around 135 horsepower at 13,000rpm. The 6X formed the basis for the 1988 VFR750R (RC30) homologation special, though it's worth noting that very few parts are interchangeable between the "F" and "R" models.

"Driving camshafts by gear isn't without its own issues. Gear lash can make accurate valve timing more difficult."



The fuel petcock knob is inset into the left side of the tank (top right), while the seat cowl is easy to remove with just a couple of screws in case you want to carry a passenger.

### Laf Young's VFR750F

Laf Young is well known in AHRMA racing circles, mostly for the delightful 250cc 4-cylinder GP replica he built from a 1970s Benelli street bike. He came across the VFR750F featured here for sale on the island of Maui in Hawaii, where he lives. As far as Laf can tell, the bike was shipped to Hawaii from California carrying a salvage title and spent some time in Kona on the Big Island. It changed hands a couple of times for around \$500, and was then acquired by Kelly Krail of Waikoloa.

Kelly carried out a full restoration of the VFR, spending at

least \$12,000 in parts alone. "I have nearly an inch of receipts since it came to the Islands," Laf says. Apparently, Kelly traded the VFR for a rare Yamaha 2-stroke 500cc V4 that a local surf-board manufacturer had brought to Maui. Laf heard that Kelly had "cleaned up" the Yamaha and sold it for \$15,000, but it seems he still has fond memories of the VFR. "I've had emails from Kelly," Laf says. "He loved the bike [the Honda] and wishes he had it back."

Laf is just enjoying owning the bike, learning more about the model as he goes. "One interesting detail," he says, "is

that the guys who raced it to great success — Fred Merkel, Wayne Rainey, Bubba Shobert — all abandoned the stock clip-ons in favor of an HRC-designed conventional handlebar. I suspect they preferred a little less weight bias on the front tire. I would give anything for the opportunity to buy or copy a set for my bike. The stock setup wears on my neck and arms after a long ride."

As a value proposition, the Honda is waiting for its time in the sun. Young's Honda may have been restored at great expense, but the market is going to take awhile to catch up with it — although there are signs it's doing just that.

"One of my contacts attended the recent auction in Vegas. There was one VFR750F for sale. It was a Bubba Shobert replica and was quickly purchased for \$5,000." That was likely a very good price, especially considering its former owner was a certain Reg Pridmore. **MC**



Laf's VR750F was treated to an extensive restoration by Kelly Krail, its previous owner.

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# AIRHEADS UNITE

## The Airheads Beemer Club's Death Valley Rendezvous

Story and photos by Bill Stermer

Vintage motorcycle clubs abound, but the one I have belonged to for more than 20 years is the Airheads Beemer Club. Founded in 1991 for owners and riders of air-cooled BMW motorcycles, it follows a simple slogan, "Simple by Choice."

One of the attractions of older Beemers is that they are indeed simple machines; generally reliable, easy to work on and you can still get parts for them. BMW's Mobile Tradition Parts Catalogue claims it's possible to get "everything you need to restore a BMW motorcycle manufactured between 1948 and 1969." For 1970 and later models, a Beemer dealer usually has or can get most parts, and as most Airhead club members tend to work on their own bikes, if any problems arise, be assured that a group of Airheads will descend upon the bike to offer help.

The club holds several events every year, including the annual Death Valley Rendezvous. I've attend this event many times, and this past February I loaded up and pointed my 1976 BMW R75/6 north toward Death Valley, heading from my home in Southern California for the 23rd Annual Death Valley Rendezvous, held over the Presidents Day weekend.

### Heading out

For the ride, I hooked up with Airhead riders Mike (R100RS) and Bernie (R60 with an R100 engine), along with Bernie's

cousin, Scott, riding his R1100S oilhead. For us, all good rides begin and end on SR 33, the twisty route north out of Ojai, California, so we headed up and over the 5,000-foot Pine Mountain Summit pass before working our way to Death Valley.

I was anticipating meeting BMW fan Mac Kirkpatrick in Death Valley, a fellow Airhead who had contributed photos for my book *BMW R100RS*. Mac lives in eastern Pennsylvania and we had never met, but he and his friend Rich Nagy were trailering their Airhead GSs to Phoenix, Arizona. From there, they were going to ride to Death Valley. A short distance out of Phoenix, however, Mac's bike began to experience trouble and he emailed me, asking if I could recommend an Airhead-friendly shop near Phoenix. I didn't know of any shops in that area, but after posting Mac's request on the Internet we were soon pointed to Dave Alquist at Quality



## John Covington's 1941 BMW R12

Although this 1941 BMW R12 isn't painted in traditional military colors, owner John Covington, Fullerton, California, assures it is indeed a military model, pointing to a Wehrmacht logo, a stylized war bird gripping a swastika, adorning the bike. The R12 has a stamped-steel frame, single carburetor and is also the first production motorcycle with a hydraulically damped fork.

After 10 years of searching, Covington found the bike on eBay in late 2001 for \$5,000; it was largely stock except for its reproduction fenders. He's had the crank rechromed and the cylinders Nikasil plated, installed new pistons, replaced the connecting rods and rebuilt the transmission, hubs and final drive. He also replaced the seals and relined the brakes. "Most BMWs of this era have bullet holes," Covington tells me, as any Allied troops who came across them wanted to disable them so they could not be utilized against them. He then points to a bullet hole in the transmission, which has been plugged with epoxy.



Cycle Service ([qualitycycleservice.com](http://qualitycycleservice.com)) in Mesa, Arizona. The bike was soon fixed and back on the road.

That Friday, my group of four rode more than 300 miles, riding through Arvin, California, before heading up the Bodfish-Caliente Road to Ridgecrest and Trona. When we finally arrived at the rally site in Death Valley, we were pleased to find about 60 bikes already in the parking lot, ringed by tents. We checked in at the registration table under the trees, having already paid our \$45 fee for three nights of camping, beverages, firewood and snacks. And what was that over in the shade? Why, there were some round, metallic containers holding certain adult beverages popularly known as "micro brews." With the help of some of this elixir we set up our tents within view — but not within snoring distance — of the other Airheads.

### Setting up

At the rally, I ran into B. Jan Hofman, who along with Al Watson co-founded the Airheads Beemer Club in 1991. Al lived in San Diego's north county, and was tired of riding into town for breakfast meetings — only to ride back up into the north county again for the San Diego BMW club's group ride. Jan suggested forming a north county BMW club, and as most of the north county members rode air-cooled Boxers, Al suggested the name Airheads Beemer Club. At the time, the national BMW organizations focused their attention almost entirely on the newer water-cooled models.

In the fall of 1991, Jan wrote a letter to the editor of the BMWMOA (BMW Motorcycle Owners of America), asking if there was room within the existing

It's no wonder they call it Death Valley (left); there's almost nothing living in it. Well, nothing besides a crazed crowd of vintage airhead BMW fans celebrating their favorite bikes.

organization for an airhead contingent. That letter drew 54 positive responses, and the Airheads Beemer Club ([airheads.org](http://airheads.org)), which today boasts more than 3,000 members and a chapter in every state, was formed. Jan edits the slick monthly club newsletter, *Airmail*, which features upcoming events, travel stories, ads and an excellent technical column.

As I returned to the registration area, I noted a vaguely familiar man walking along, announcing in a loud voice to no one in particular, "Would Bill Stermer please pick up the white courtesy telephone?" and realized I was about to meet Mac Kirkpatrick. We shook hands, pounded backs and immediately retired to the shady spot with the micro brews, where he introduced me to his buddy Rich Nagy. My three friends came by, we watched the sun go low, the light soften, and ate dinner. We hung around talking, and finally shuffled off to our tents, noting the immensity of the desert sky and the clarity of the stars.

### Helping hands

In the morning, several of us ambled over to the Furnace Creek Ranch for breakfast then went off on rides. Some headed for Ubehebe Crater, others to the ghost town of Rhyolite. Some went to Beatty, Nevada, and still others took



## Rick Huemmerich's 1959 BMW R50

In 1970, Ulrich "Rick" Huemmerich came to the U.S. from Germany on a six-month assignment to install machinery in a Detroit factory. Forty-some years later, he's still here.

Rick was an engineer with Cadillac for 35 years, and now lives in Las Vegas. He's had this 1959 Earles fork BMW R50 for years, but got it running only recently. The engine runs valves from an R69S (which had to be shortened) and an aluminum flywheel, and Rick modified the transmission to eliminate the common BMW "clunk" during shifting. The seat and exhaust system are aftermarket, and it has a front fender from an early Honda Gold Wing while the tank is from a BMW /6, which required cutting and welding in a deeper tunnel to fit.

He made the small bags himself. He added wooden slats to the original Denfeld rack, and installed later-model taillight and turn signals. The red paint job was done, believe it or not, with spray cans!



Clockwise from right: Lunch stop at The Ranch House restaurant in Olancho, California; Robb McElroy has ridden his 1993 R100GS across 14 countries and more than 135,000 miles; fellow Airheads came to the rescue when Mac Kirkpatrick's GS suddenly died.

in Scotty's Castle, the mansion built by a reclusive character known as "Death Valley Scotty." Mike and I rode toward Dante's View for the premier view of Death Valley, but on the way came across Mac and Rich pulled off the road with Mac's bike apart. He said the engine had suddenly quit, and Airhead restorer Greg Hutchinson was elbow deep in the mechanicals.

Eventually, someone fetched a trailer and hauled Mac's GS back to the campground, where, as Mac tells it, "Folks came out of the woodwork to offer help, advice and moral support. I could not get near my bike, there were so many guys working on it and offering advice." The problem turned out to be a broken solder joint in the kill switch, so the guys in the group fastened two wires together to bypass it.

By the last day of the rally, attendance had blossomed to more than a hundred and all manner of air-cooled BMWs graced the parking lot. Riders were strolling around deep in conversation about camping gear, maintenance, accessories and high-output alternators. The kegs were nearly drained, and many new friends had been made. It had been another great Death Valley Rendezvous, and a stirring ride home was still ahead of us. **MC**



## Bill Stermer's 1976 R75/6

I bought this bike in 1985 from Reg Pridmore's RPM BMW shop in Ventura, California, completely stock and with about 47,000 miles on it. Its unique fairing came from Reg's counterman, Jeff. It had been crashed and considerably scratched up, so I took it to a fiberglass expert for repair. I sent the broken bubble-style windscreen to plastic windscreen expert Leif Gustafsson (bikescreen.com), who fabricated a new one. I later learned the fairing is a rare DBV from the Netherlands.

I got the 8-gallon Heinrich gas tank through a classified ad, and had it and the fairing painted to match the bike. A friend of mine nicknamed the fairing "The Flying Tit." RaceTech in Corona, California, rebuilt the forks and I also installed a set of their G3-S IFP Custom Dual Shocks. An oil problem caused the engine to seize in 2014, so I had the guys at RPM Cycles, the successors to Pridmore's shop, install a used R80 engine. The bike now has over 113,000 miles on it.



Bill Stermer and his 1976 BMW R75/6 at Death Valley.

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Circle #14; see card pg 81

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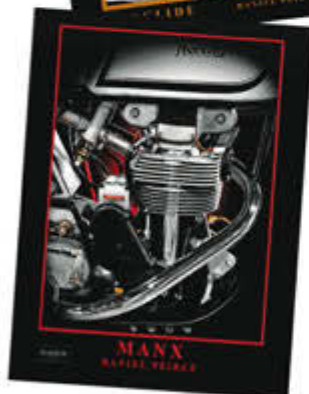
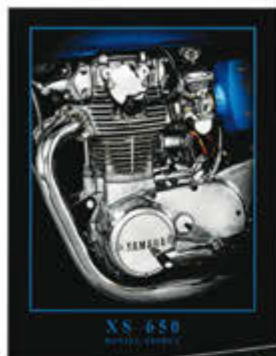
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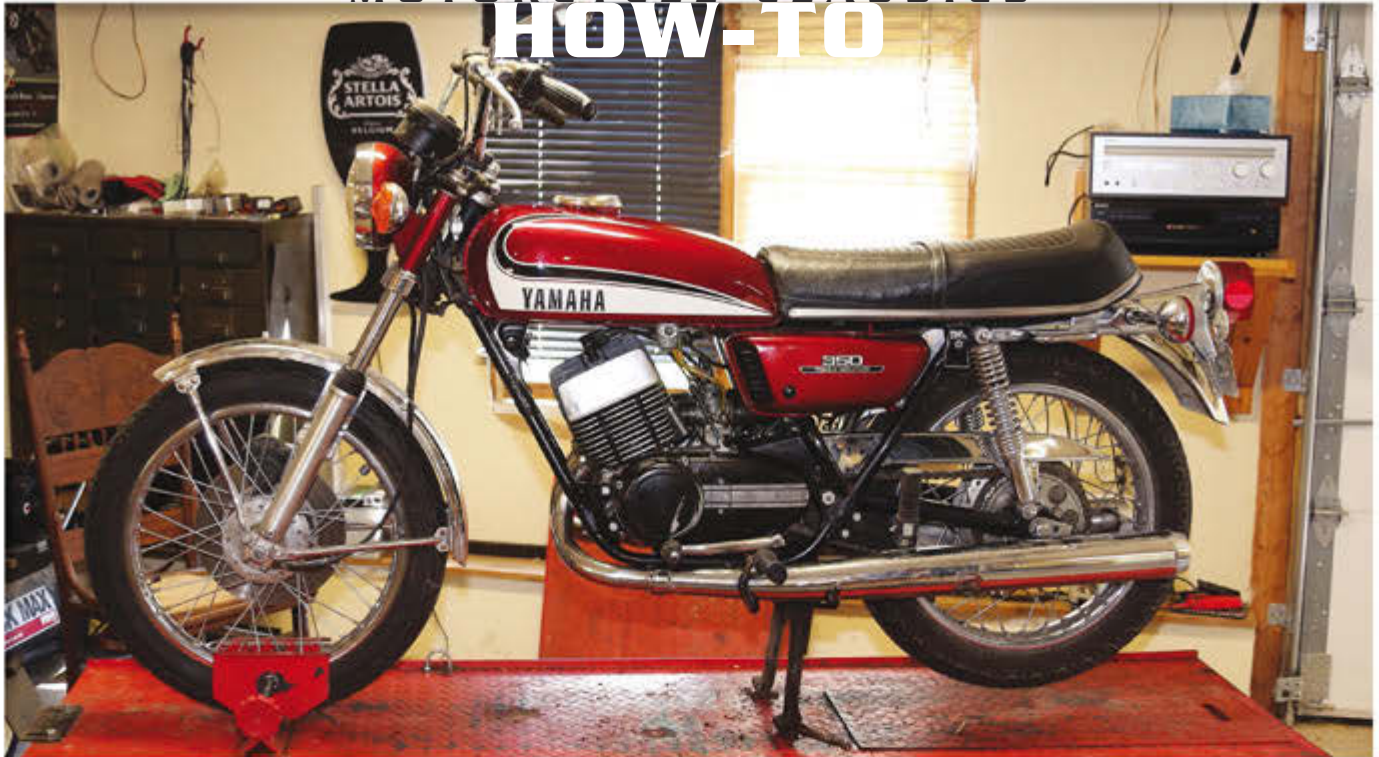


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Circle #3; see card pg 81



## Replace Yamaha 2-stroke carburetor/oil pump cables

If you've replaced carburetor throttle cables on a vintage 4-stroke engine, you know that the basic process is relatively simple. The complicating factor for anything other than a single-cylinder engine is making sure the carburetor slides are synchronized to each other so they pull off idle evenly. If your carbs are adjusted properly before you replace the cables, getting the slides synchronized isn't that difficult, as we describe.

Vintage Yamaha 2-strokes equipped with Yamaha Autolube oil injection have one more component. These bikes have a cable working in conjunction with the throttle cables, operating an oil injection pump and increasing oil pump flow as throttle is applied. As a result, a 2-cylinder Yamaha 2-stroke such as our subject 1973 RD350 has four cables — two carburetor slide cables, one Autolube oil pump cable and one throttle cable at the handlebar twist grip. Additionally, the multicable setup has a cable junction that links the top or twist grip cable to the carburetor and oil pump cables. The cable junction can fail, falling apart from years of use. On our bike, a previous owner had clamped and zip-tied the junction to keep it in one piece.

If any one of these cables breaks or is damaged, you're likely looking at replacing the entire cable assembly, as individual cables are increasingly difficult to find. Yet replacing them as a set is a good idea, as cables are service parts that have to be replaced occasionally. Regular use takes a toll, leading to stretched cables and worn-out cable housing ends. Nonuse does, too,

resulting in sticking cables from years of sitting.

Fortunately, thanks to specialty parts providers like HVCcycle (hvcycle.net), complete cable assemblies for Yamaha 2-stroke twins are readily available.

Replacing the cables isn't a particularly difficult job, and can be done by the average home mechanic in a few hours. You won't need any special tools, but like so many of these projects, patience is the single most important ingredient to success.

Protocol is important in this project, as well: With the new cable assembly installed, it's important to first synchronize the carburetor slide pull, followed by the oil pump pull, and finally by removing any

excess cable play using the adjuster at the handgrip.

Doing this job revealed a few other tips. Tip 1: If your RD still has the original rubber carburetor air intake boot, replace it at the same time. It has to come off and it's probably hard as a rock; getting old ones back on is a bear. Tip 2: As you install the new cable, make sure the cable ends fit into place properly. On our oil pump cable, a slight excess of solder on the cable end barrel kept it from properly slotting into place on the oil pump pulley. The fix was easy: Using a small hand file, we gently filed off the excess solder until the cable dropped smoothly into place. It didn't take more than a few minutes to address.

A complete assembly from HVCcycle was \$70.95, and the one we received was as good if not better in quality than the original. As always, having a good shop manual at hand will help you work through the process. Happy riding!



Original "repaired" cable junction was on its way out.

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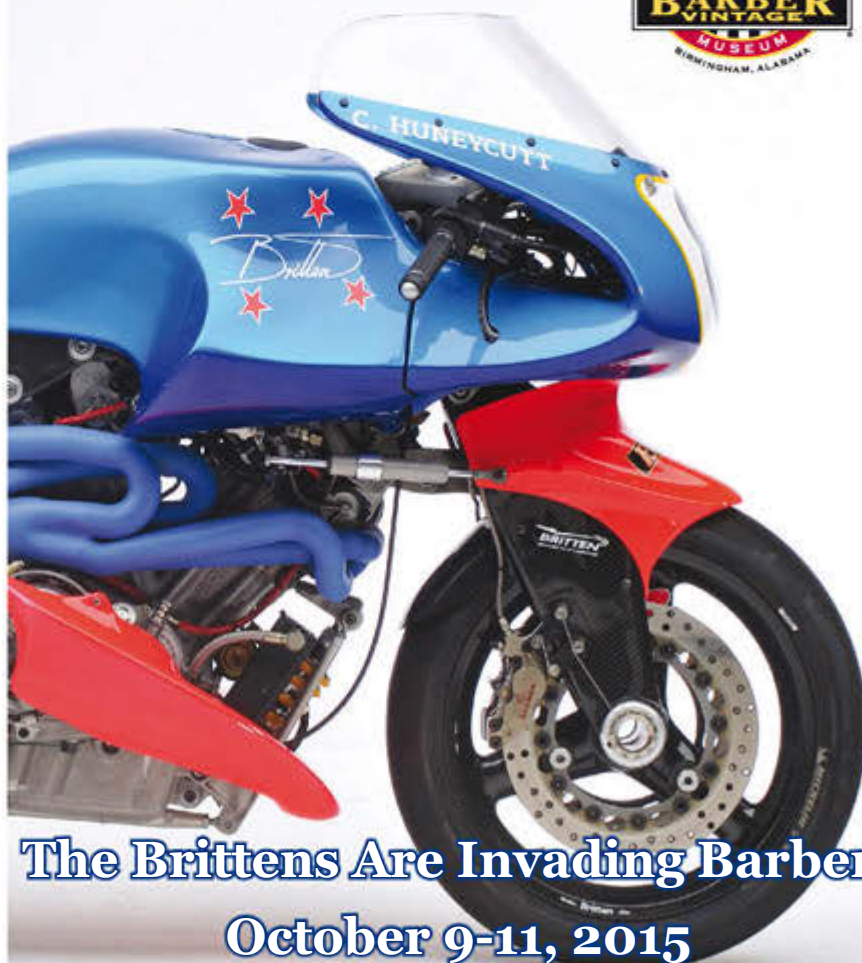


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**1** Disconnect the fuel line at the petcock and drain the gas tank into a container.



**2** With the gas tank drained, disconnect the fuel crossover line and plug the line and the tank outlet. The crossover runs from the left to right side of the tank; you only need to disconnect one side to remove the tank.



**3** With the gas tank off, unscrew each carburetor slide cover and remove the slide assembly. The accelerator cable slots into the bottom of the slide, held in tension by the slide spring. Compress the spring and release the cable.



**4** With the cables removed from the slides, remove two screws securing the right control assembly and cable stay plate. Pull the top half away and unhook the cable from the twist grip.



**5** With the accelerator cable disconnected from the twist grip, thread the upper cable down between the handlebar and instruments and pull it free. Note the cable routing guide on the left side of the steering head.



**6** Next, remove the right side engine cover to expose the oil pump. Rotate the oil pump pulley counterclockwise and release the cable from the pulley. Unscrew the cable housing from the side cover and pull the cable free.



**7** Next, thread the upper section of the new cable through the cable guide at the steering head and up between the handlebar and instruments.



**8** Lightly grease the handlebar end and the cable barrel. The original cable has a rubber sleeve to hold the cable housing tight in the assembly. Reuse it if possible. Pull the cable through the lower half of the control assembly and secure it in the twist grip. Secure the two halves of the control assembly and the cable stay plate.



**9** Next, route the oil pump cable through the side cover and screw the cable housing into the side cover.

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**10** With the cable housing screwed into place, rotate the oil pump pulley counterclockwise and secure the cable end barrel into the pulley.



**11** Attach the accelerator cables to the carburetor slides. The easiest way is to first slot the cable into the slide, followed by the slide needle and retaining plate. The spring can then be wound around the cable, compressing it as it winds on, until it's fully in place.



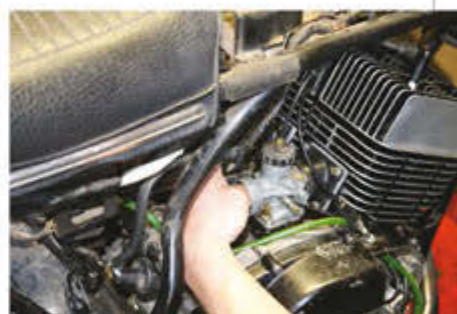
**12** Install the slides in the carburetors, followed by the carburetor slide covers. Remove the right side panel, loosen the clamp securing the intake boot to the air filter housing and the clamps securing the boot to the carburetors and remove the boot.



**13** Next, lift the seat and loosen the clamp securing the oil filler tube to the oil tank. Remove the two bolts securing the oil tank. Pull the oil tank far enough away from the frame to disconnect the oil breather hose. Next, remove and cap the oil supply outlet and tube and remove the tank.



**14** To adjust the carburetors, first make sure both cables are slack and that the slides are resting on their idle stop screws. Using your fingers to feel the slides for movement, adjust the cable tension at each carburetor to take out most of the cable slack.



**15** Using your forefinger and thumb, feel the carburetor slides for even lift as you pull the twist grip; they should rise simultaneously. If not, slowly adjust the cable tension on the "slower" slide until it lifts evenly with the other slide.



**16** With the slides set, lock the cable adjuster at the carburetors by setting the lock nut on the housing.



**17** Next, set the oil pump pull. Turn the throttle twist grip until the carburetor slides are just starting to lift, then adjust the oil pump cable housing until the index mark on the oil pump pulley lines up with the pin on the oil pump plunger.



**18** To finish, reinstall the engine side cover, the air intake boot, the oil tank and right side panel, and the gas tank. Finally, remove any cable slack at the twist grip by adjusting the threaded cable barrel at the twist grip.

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## “How does syncing contribute to performance?”

### Synchronizing carburetors

**Q:** I have a question regarding “syncing” carburetors. Some gurus can synchronize them by ear, and I’ve met mechanics who are just incredible and use all their senses to accomplish the extraordinary. How does syncing contribute to performance? Usually, I measure the slides with the carbs on the bench with drill bits, selecting a size that just fits between the horn and the slide, and average the two (or three or four). Are there unique factors with individual cylinders that require a “power on” vacuum test, or am I good to go? I suggest to your readers to start a scrapbook, as I have with your articles. I look through the table of contents when I’m stumped and lo and behold, you’ve already done the work for me.

Mike Peterson/Chetek, Wisconsin

**A:** In a multicarburetor setup, synchronizing ensures that each carburetor is providing the same amount of fuel and volume of air at the same rpm. That in turn keeps the cylinders working in unison, with no cylinder working harder than the other. This, along with engine timing, contributes to an engine that runs smoothly and accelerates at its best. What you’re describing is generally referred to as “bench syncing” and it is a necessary first step whenever you have disassembled a multicarb setup. Depending on whether you’re dealing with CV carbs or direct slide carbs, the technique is a little different. On direct slide carbs such as the Amals on British Triumphs and Nortons, you can use the wire-gauge method you outline, using the idle stop screw to get the initial opening the same. Assuming you have the carbs off the bike, you can try this. For CV carbs, I keep a few 1/4-inch ball bearings on hand. I place them in the throat of the carburetor and open the butterflies. If the balls drop simultaneously, the butterfly valves are synced. Once that’s done, you need to make sure the cables are pulling identically for all the carbs. You can check at wide open throttle to see if the slides are all the way up to the same degree, but you can’t really tell if



Ready to take your classic queries: Old bike mechanic Keith Fellenstein.

the intermediate range is matched. This is the range where you’ll spend most of your riding time. The easiest way to do that is with vacuum gauges.

### Starting troubles

**Q:** I have a 1986 KTM 250MX and am unable to start it using the kickstarter. I have installed a new spark plug, and the carburetor is clean. The timing is correct, and I’ve installed a new power reed. It will start if it’s pulled behind a four-wheeler.

Clair Raible/Black River, New York

**A:** Without seeing the bike, I can only guess, but for a 2-stroke, starting troubles that are overcome by pull starting usually point to bad crank seals. Once you have it running, will it idle reasonably, or does it die? That’s another pointer to crank seals. If you can do a pressure test, you should be able to pinpoint the problem easily. If it idles once you have it started, it may be poor compression. Again, a pressure test will give you the answer. See our How-To in the March/April 2015 issue or online at [motorcycleclassics.com/mc-how-to/pressure-check-a-2-stroke-engine.aspx](http://motorcycleclassics.com/mc-how-to/pressure-check-a-2-stroke-engine.aspx)

### Frame powder coating

**Q:** I have a question that I thought you might be able to help me with, or at least steer me in the right direction. I’m restoring a 1984 Kawasaki ZX750E Turbo, and I’d like to

have the frame powder coated. The problem is the factory applied federal standards stickers near the steering head. They would be destroyed in the powder coating process, but they would also be destroyed in trying to remove them. Do you know if these have to remain on an older, restored motorcycle, or can they be removed? I could take photos of them and have them reproduced and re-apply them, but I don’t know if that’s legal, or if legality needs to be considered in this case. Do you have any info on this in your experience? I appreciate any help you can give me, whether directly or from another source that you know.

Bill Adams/Pleasant Plain, Ohio

**A:** You may not like my answer, but here goes. I’m not a fan of powder coating frames for a number of reasons, some mechanical and some cosmetic. Let’s start with the mechanical. The thickness of the coating can interfere with refitting engine and frame components if you are not completely obsessive in masking off all the bolt bosses and threaded openings before having the frame done. More significantly, the flexibility and thickness of the coating can mask corrosion under the coating, and hide fractures in welds and other areas of the frame that you don’t want hidden. Those are my major concerns. A minor concern is that when, not if, the frame gets chipped, you can easily touch up paint, but powder coating, not so much. To your main concern, I don’t know of a way to protect the frame labels from the heat needed to fuse the powder coating. With many states increasing scrutiny of VIN numbers on older bikes, it becomes imperative to make the inspector’s job easier so you don’t spend time arguing with them over proper frame/engine numbering. My recommendation is to find a good paint shop and enamel the frame. Thanks for reading my column, and I’m sorry if this isn’t what you wanted to hear. **MC**

Need help with your classic bike?

Email your questions to [keithsgarage@motorcycleclassics.com](mailto:keithsgarage@motorcycleclassics.com)

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# RIDES AND DESTINATIONS



## THE EMERALD COAST, FLORIDA

**T**he Panhandle. The Redneck Riviera. LA (as in Lower Alabama). The Emerald Coast. Of all the names for this exotic region, in my opinion the Emerald Coast captures it best. It's the Gulf, a brilliant green and sparkling body of water that contrasts with and is sharply accented by the area's sugary white beaches. The beaches are amazing; the sand is so fine and so clean it actually squeaks when you walk on it. Florida's Emerald Coast is not so much a single destination as it is a region, stretching from Pensacola on the western end to Panama City to the east, with lots of little towns dotting the coast in between.

Of all the little towns, Fort Walton Beach and Destin are the Emerald Coast's crown jewels. Destin is a sport fisherman's paradise, but even if (like me) you don't fish, you can sure enjoy the seafood. My favorite is grilled amberjack, a local delicacy with incredible flavor. You can find it in any of the Emerald Coast's many eating establishments. Don't worry about finding a bad restaurant; in all my years of visiting the area, I have never had a bad meal. Fort Walton Beach is touristy and kitschy (refrigerator magnets, anyone?), but the beaches make it worth a visit.

But wait, you say. Florida has no mountains, no curves, it's hot and humid, it's crawling with snakes and alligators ... what does it hold for motorcycling? The no mountains part is correct. Florida is mostly a huge sandbar (Britton Hill, only 345 feet above sea level, is Florida's highest point), but that part about no curves is wrong, especially if you turn inland from nearly any point along US 98. And make no mistake, US 98 is the quintessential Emerald Coast road.

US 98 loosely parallels I-10 (which is farther inland to the north) and it runs right along the coast. Views of white sandy

beaches and the emerald sea are interrupted only by the many condos, hotels, restaurants and other buildings along the coast. Riding US 98 can be a challenge. Heat, humidity, stop-and-go traffic and no lane splitting are frustrating for this California boy. And Florida's nickname (the Sunshine State) doesn't quite ring true in the summer when the thunderstorms start. All that notwithstanding, the Emerald Coast has its pleasures. You can grab nearly any road heading north from either US 98 or I-10, and just allow yourself to get lost. There are some beautiful roads and homes out there. The loop from Panama City Beach through DeFuniak Springs, in particular, is an awesome ride (just grab SR 79 north and follow the signs).

The U.S. military has a large presence in this area. The Army Rangers do their jungle training on Eglin Air Force Base, which gives you a hint as to what the terrain is like (think alligators, snakes, and ... well, you get the idea). Eglin shares its runways with Fort Walton Beach's commercial airport. It's a munitions engineering and test center and home to America's largest inland bombing range. Eglin has a dynamite (no pun intended) armament museum, and it's open to the public. The U.S. Navy's Blue Angels are based out of Pensacola Naval Air Station. Air Force AC-130s regularly depart on secret missions from Hurlburt Field.

The Emerald Coast's stark beauty makes it a favored film location. *Thirty Seconds Over Tokyo*, *Twelve O'Clock High* (one of my all-time favorites), *The Truman Show* and *Jaws 2* were all filmed in this area.

Great food, great scenery, brilliant colors and great riding just about sum up Florida's Emerald Coast. It's a superb destination and its Gulf Coast location makes it rideable year-round. Just don't forget your rain gear! — Joe Berk

## THE SKINNY

**What:** The Emerald Coast, a stretch along the Florida Panhandle's coast running from Pensacola to Panama City.

**How to Get There:** Drop south from anywhere along I-10 until you hit US 98.


**Best Kept Secrets:** The cuisine: grilled amberjack, hush puppies, cole slaw with raw horseradish and a draft beer (life just doesn't get any better). Don't miss the U.S. Air Force Armament Museum; it's definitely worth a visit.

**Avoid:** Leaving home without rain gear. Also avoid spring break, as the Emerald Coast is a favored destination for testosterone-and-tequila-fueled college students.

**More Info:** [emeraldcoastfl.com](http://emeraldcoastfl.com)



One of the many bridges on US 98 along the Emerald Coast.



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Circle #2; see card pg 81

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# VINTAGE BIKE SHOWS 2015

**Join Motorcycle Classics and our sponsors at The Meet Vintage Motorcycle Festival and the 10th Annual Bonneville Vintage GP!**

## The Meet Vintage Motorcycle Festival

America's Car Museum, Tacoma, Washington  
August 22-23, 2015  
Open to all 1990 and older motorcycles and scooters,  
with judging in 18 classes  
[www.vintagemotorcyclefestival.com](http://www.vintagemotorcyclefestival.com)

## 10th Annual Bonneville Vintage GP

Miller Motorsports Park, Tooele, Utah  
Labor Day weekend, September 4-6, 2015  
Featured Marque: Norton  
[www.bonnevillevintagegp.com](http://www.bonnevillevintagegp.com)

Visit [www.MotorcycleClassics.com/2015-Shows](http://www.MotorcycleClassics.com/2015-Shows) for updates!



# CALENDAR JULY/AUGUST

## Don't miss these upcoming events!

**7/10** Visit the Mid-Ohio Sports Car Course in Lexington, Ohio, July 10-12, for the AMA Vintage Motorcycle Days. Watch the AMA Racing Vintage Grand Championships, check out the world's largest motorcycle swap meet, and enjoy demo rides, seminars, the American Motor Drome Wall of Death and more. More info: [amavintagemotorcycledays.com](http://amavintagemotorcycledays.com)

**7/10** Head to the New Jersey Motorsports Park in Millville, New Jersey, for the 3rd Annual AHRMA Vintage Motorcycle Festival, July 10-12. The event kicks off Friday night with the monthly NJMP Bike Night and will feature AHRMA road racing, a swap meet and more. Saturday and Sunday will also feature the South Jersey Wine Festival from 12-5 p.m. More info: [njmp.com](http://njmp.com)

**7/23** The All Brands Motorcycle Event at McKee's Sky Ranch in Terra Alta, West Virginia, takes place July 23-26. The event will

feature a swap meet, vintage bike show, a dual sport ride, road ride, AHRMA offroad racing and more. More info: [mckeeskyranch.com](http://mckeeskyranch.com)

**8/22** Head to Tacoma, Washington, for the Meet Vintage Motorcycle Festival at America's Car Museum. Expect 450-plus vintage bikes on Saturday, plus dealers, vendors and more. Join the Sunday ride through the Mt. Rainier Valley. More info: [vintagemotorcyclefestival.com](http://vintagemotorcyclefestival.com)

**9/4** This year marks the 10th anniversary of the Bonneville Vintage GP at the Miller Motorsports Park in Tooele, Utah. Saturday will feature the *Motorcycle Classics* Vintage Bike Show, with Norton as the featured marque and Brian Slark from the Barber Motorsports Museum as the guest judge. Enjoy AHRMA racing and the CB160 Races with LeMans starts both days, and the Salt City Builds Custom Bike Show on Sunday. More info: [bonnevillevintagegp.com](http://bonnevillevintagegp.com)



James Iwase's 1969 BMW R69S won first place in the Vintage German class in 2014 at The Meet.

**9/5** Visit the Owls Head Transportation Museum in Owls Head, Maine, for the Vintage Motorcycle Meet Sept. 5-6. Owners of pre-1995 motorcycles are encouraged to exhibit and will be admitted free of charge. More than 300 bikes are expected, along with antique planes, Model T rides and more. More info: [owlshead.org](http://owlshead.org)

**July 10-12** — 24th Annual MGNOC Iowa Rally. Elkader, IA. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**July 12** — Jeff Williams MC Swap Meet. Tulsa, OK. [jwswwapmeet.com](http://jwswwapmeet.com)

**July 13-17** — INOA Norton Carolina Rally. Asheville, NC. [nortonrally.com/inoa-rally-2015](http://nortonrally.com/inoa-rally-2015)

**July 17-19** — 35th Annual British Biker Cooperative Rally. Blue River, WI. [britishbiker.net](http://britishbiker.net)

**July 17-19** — 13th Annual Broken Arrow Rendezvous. Gibbonsville, ID. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**July 23-25** — 43rd Annual BMW MOA International Rally. Billings, MT. [bmwmoa.org](http://bmwmoa.org)

**July 24-26** — MGNOC WA State 28th Annual Deep Forest Campout. Randle, WA. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**July 24-26** — MGNOC New York Rally in the Adirondacks. Lake Clear, NY. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**July 26** — Jeff Williams MC Swap Meet. Kansas City, MO. [jwswwapmeet.com](http://jwswwapmeet.com)

**July 31-Aug. 2** — NATA-Rally, the official MGNOC Rally of California. Boulder Creek, CA. [nata-rally.org](http://nata-rally.org)

**July 31-Aug. 2** — Moto Guzzis in the Blue Ridge Campout. Cruso, NC. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**Aug. 1-3** — 31st Annual Wisconsin Moto Guzzi Rally. Lake Joy Campground, Belmont, WI. [wmgr.org](http://wmgr.org)

**Aug. 7-9** — Ohio Valley BSA Owners Club 34th Annual Rally. Toronto, OH. [ohiovalleybsaownersclub.com](http://ohiovalleybsaownersclub.com)

**Aug. 7-9** — Indianapolis MotoGP. Indianapolis, IN. [redbullindianapolisgp.com](http://redbullindianapolisgp.com)

**Aug. 7-9** — Massachusetts Moto Guzzi Rally. Russell, MA. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**Aug. 8** — 3rd Annual VJMC Midwest Regional Show. New Century, KS. [kcvjmc.org](http://kcvjmc.org)

**Aug. 13-16** — MGNOC New Mexico State Rally. Datil, NM. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**Aug. 16** — Jeff Williams MC Swap Meet. Oklahoma City, OK. [jwswwapmeet.com](http://jwswwapmeet.com)

**Aug. 16** — British Iron Association of Connecticut 30th Annual Brit Jam. Haddam Neck, CT. [ctbritiron.org](http://ctbritiron.org)


**Aug. 29-Sept. 3** — Bonneville Motorcycle Speed Trials. Wendover, UT. [bonneville-speedtrials.com](http://bonneville-speedtrials.com)

**Aug. 23** — Jeff Williams MC Swap Meet. Kansas City, MO. [jwswwapmeet.com](http://jwswwapmeet.com)


**Aug. 28-30** — Umpteenth Annual MGNOC Nevada State Campout. Dayton, NV. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**Aug. 28-30** — Ontario Guzzi Riders 21st Annual Ontario Guzzi Rally. Lavigne, Ontario, Canada. [mgnoc.com/rally\\_calendar.html](http://mgnoc.com/rally_calendar.html)

**Sept. 3-6** — GWRRA 37th Annual Wing Ding. Huntsville, AL. [gwrro.org](http://gwrro.org), [wing-ding.org](http://wing-ding.org)

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Circle #12; see card pg 81

## New Stuff for Old Bikes

From torque wrench adapters to Triumph performance parts, here are six cool products every classic bike fan should know about.



### Triumph twin outrigger bearing

Triumph twin specialists Britech New England make a custom transmission countershaft outrigger bearing for 5-speed Triumph Bonneville twins. The custom 6130 billet alloy machined plate with high-speed bearing replaces the stock seal plate behind the clutch assembly, providing extra support for the transmission countershaft and reducing load stresses on the transmission from countershaft deflection. \$189.95. More info: [triumphday.com/britech](http://triumphday.com/britech)



### Torque wrench adapter

Motorcycle tool specialists Motion Pro make this adjustable torque wrench adapter for torquing hard-to-reach nuts and bolts. It works with any 6mm through 19mm metric or 1/4in through 3/4in SAE combination wrench and with 6mm and 8mm Allen wrenches. We used it to torque the barrel nuts on a Norton Commando 850 twin — only accessible with a box-end wrench — and it worked beautifully. No torque adjustment is required as long as the wrench is at 90 degrees to the torque wrench. A must. \$45.99. More info: [motionpro.com](http://motionpro.com)



### Modern vintage wear

Inspired by the real world of racing and riding, and crafted from premium cowhide leather to deliver beauty and durability while providing critical abrasion resistance, the M1 jacket from Pagnol brings functional style to motorcycling in a way few garments do. Classic yet modern, it's designed for everyday riding and crafted to last for years, with protective underarm Kevlar panels and pockets in the mesh lining for additional armor. Available in three colors (Tobacco shown), sizes XS-XL. \$599. More info: [pagnol-moto.com](http://pagnol-moto.com)



### Hands-free calling

We're not proponents of using cell-phones while riding, but if you must, this Handlebar Remote with Bluetooth technology from Sena looks like a good way to make sure you keep both hands on the handlebar where they belong. Designed to work with Sena headsets, the Handlebar Remote allows the rider to answer or make calls without fidgeting with a handlebar-mounted phone or helmet-mounted headset control. You can also use it to control Sena's Prism Bluetooth Action Camera. \$99. More info: [sena.com](http://sena.com)



### No fume gas draining

Owners of vintage machinery know that ethanol-enhanced fuel breaks down quickly in storage, leaving behind carburetor damaging deposits. To make winter-time fuel draining easy, Innovative Flow Technology makes a quick-release no fume quick coupler that can be spliced into a fuel line. Draining fuel for storage is a simple matter of uncoupling the fuel line, then coupling an auxiliary drain line to drain fuel into a gas can, eliminating fuel spills. Available in chrome (\$59.95) or stainless steel (\$119). More info: [drainnstore.com](http://drainnstore.com)



### Motorcycles as art

Identical twins Trev and Tim Gainey are photographic artists with a passion for vintage motorcycles, and they've applied their art to their passion to produce beautiful color and monochrome images of Triumph, Norton, BSA, Vincent and Triton engines, gas tanks and more. The images are available in a range of mountings and sizes, starting at \$65 for poster prints, with large acrylics for \$640. More info: [MotorcycleClassics.com/Gainey-Art](http://MotorcycleClassics.com/Gainey-Art)



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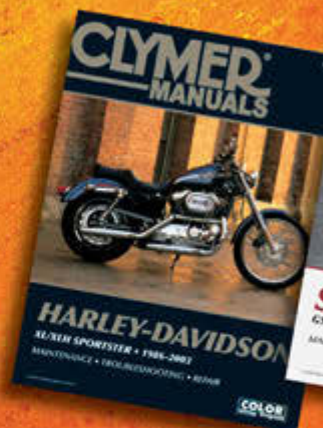
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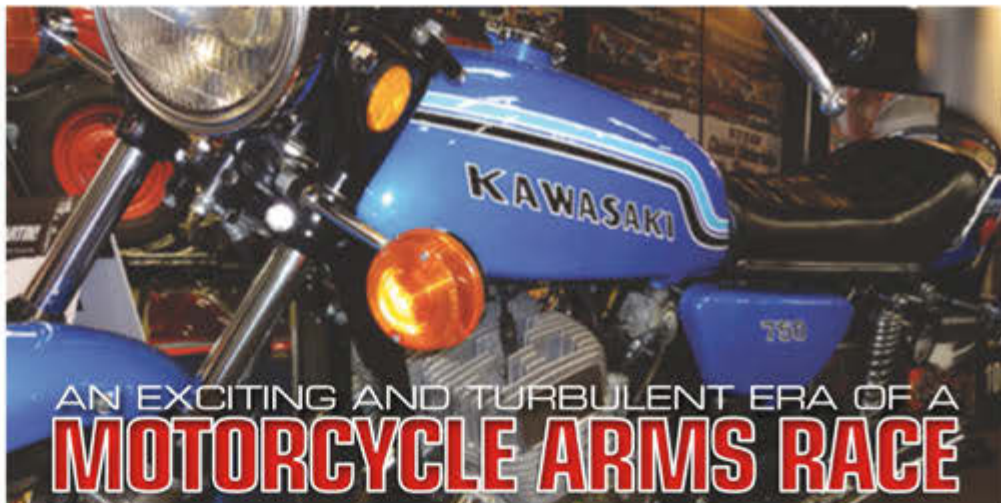
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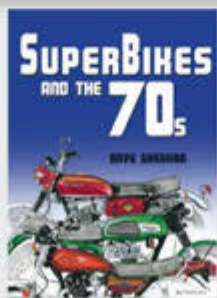
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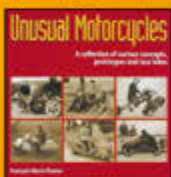
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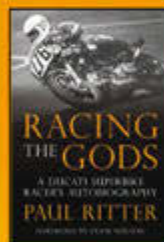
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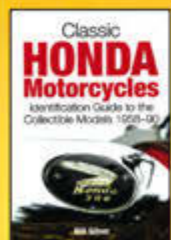
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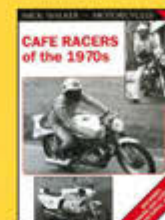
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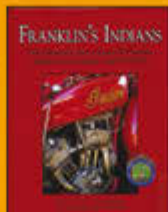
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### The Triumph Bonneville Bible

This is a meticulously detailed history of the Triumph Bonneville, its antecedents, how it came about, and year-by-year production changes, with detailed technical specifications and contemporary road test reports showing how the Bonneville compared with its rivals. Unlike other Bonneville books, this one also tells you how to buy one of these iconic bikes secondhand, all the pitfalls to avoid, what to look for, and what they are really like to live with.

#6913 \$54.95



### Franklin's Indians

This book not only chronicles the life of Charles B. Franklin, the designer of the Indian, but also sheds much new light on the history of Indian motorcycles and the often turbulent times of the Indian Motorcycle Company itself.

#5850 \$59.99 \$33.94

**CLEARANCE**



### How to Build a Café Racer

What's old is new again, and the newest trend on the block is the café racer. Converting a stock motorcycle to a café racer requires more than a fairing and a few decals. *How to Build a Café Racer* starts with chapters on planning and choosing an appropriate bike, followed by chapters that detail the modifications that will likely be embraced by anyone converting a stocker to a rocker.

#6684 \$27.95



### BMW R90S

Although in production for only three years, the R90S was the most significant post-war production BMW motorcycle. Author Ian Falloon tells the story of this important bike and how it evolved, noting all significant changes from year to year. Beautifully laid out with big full-color pictures, Falloon's book is filled with enough detail to make restoring these great bikes much easier, and also includes a chapter on how to live with R90S, using them as reliable daily commuters, making popular upgrades, and what to look for if you are in the market for one.

#2676 \$29.95



### Professional Sheet Metal Fabrication

*Professional Sheet Metal Fabrication* is the No. 1 resource for sheet metal workers old and new. Join veteran metalworker Ed Barr as he walks you through the ins and outs of planning a sheet metal project, acquiring the necessary tools and resources, doing the work, and adding the perfect finishing touches for a seamless final product.

#6787 \$39.99



### Motorcycle Dream Garages

Open the workshop doors to where old Triumphs, Hondas and Ducatis are restored; wild customs and Harleys come to life; and friendships are built on beer and bruised knuckles. This book takes you inside the ultimate garages, from an old firehouse to a lavishly finished tin shed to a plain, two-car attached structure harboring a treasured bike (while the family car sits outdoors).

#6759 \$24.99



### BMW: Motorcycles of the Century

*BMW: Motorcycles of the Century* is a reference book written by collectors, for collectors, and serves as an essential guide to estimate and buy vintage motorbikes from this prestigious international brand. With precise images and technical information on every single model produced between 1923 and 2000, this book provides precious advice and suggestions, as well as in-depth analysis of the motorbikes' characteristics.

#7188 \$60.00



### The A-Z of Three-Wheelers

Love them or loathe them, the three-wheeler, Cycle-car or even Tri-car has had an important impact in the development of the present day motor car. Organized by manufacturer and including full details of all models and more than 470 photographs (together with an introduction by Charles Morgan of the Morgan Motor Company), *The A-Z of Three-Wheelers* is a comprehensive guide to this classic mode of transport.

#7189 \$39.95



### Norton Commando: The Complete Story

This book looks at the history and development of the Commando, gives the specifications and outlines the model changes, and also offers the riding experiences of the past and present owners.

#5561 \$34.95

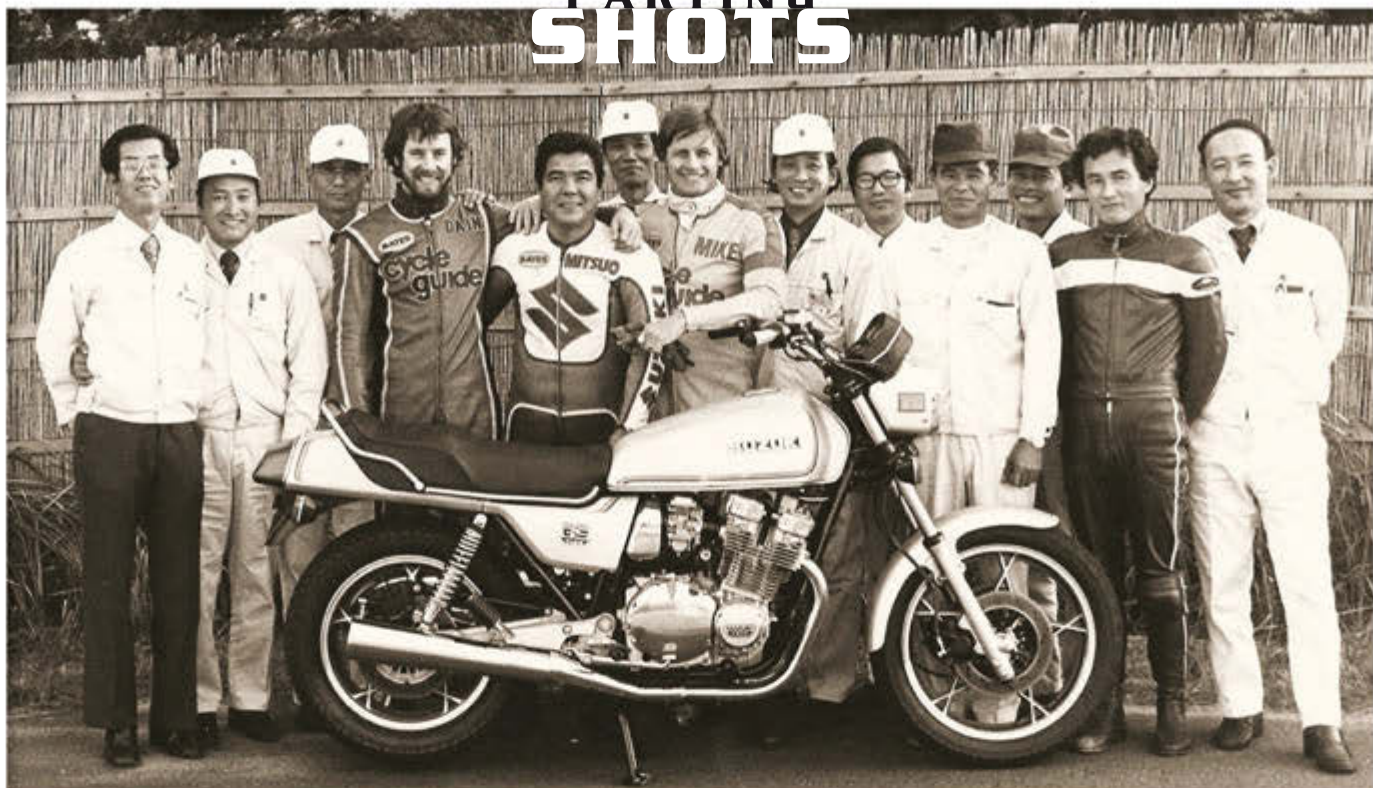
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Dain Gingerelli (fourth from left) with Suzuki GP star Mitsuo Itoh at a 1979 tech briefing for the new Suzuki GS1100E.

## Boy journalist and the Suzuki GS1100E

In 1979 *Cycle Guide* magazine's masthead listed me as Associate Editor, which was another term for "road test guy." In those days my throttle hand was responsible for most, if not all, of the test figures for motorcycles we featured. I was responsible for quarter-mile times, brake testing, fuel mileage data, track lap times, as well as posing at speed on the bikes for photos. Yeah, it was a tough job ...

In November 1979, I joined executive editor Michael Jordan (no, not that Michael Jordan) for a two-week foray to Japan, visiting motorcycling's Big Four — Honda, Yamaha, Kawasaki and Suzuki — on a fact-finding tour. I served as Michael's wingman, and while we both were invited to ride key motorcycles during our visit, I would be the one to press the bikes to their limits when and if the opportunity availed itself.

That moment came visiting Suzuki in Hamamatsu. To our surprise, Suzuki management set up a special tech briefing showcasing two all-new models, the GS750E and the groundbreaking GS1100E, bikes that had yet to be released to dealers anywhere in the world. Michael and I were given a firsthand, inside look at these bikes — truly an honor, especially in those days when the Big Four were highly secretive about their products and market intentions.


But the GS skull session was only half the surprise; the next day Suzuki shuttled Michael and me to Ryuyo, the company's test track on the outskirts of town, for an exclusive ride aboard both bikes. It was a road test editor's dream, although other than stopwatches we had no recording apparatus to quantify what constituted seat-of-the-pants testing. In the course of the day, I became one of the first journalists to sample either bike. The GS1100E, in particular, was state-of-the-art, the first true hyper-bike that defined 1980s motorcycling.

Serving as tour guide for my initial laps around Ryuyo was

none other than Suzuki's first "name" road racer, Mitsuo Itoh. Itoh-san had helped put Suzuki's name at the forefront of Grand Prix world championship racing when he won the 50cc class at the 1963 Isle of Man TT. He also won the Japanese GP in 1967 (again, 50cc class). I was familiar with Mr. Itoh, having read about his accomplishments when I was a teenager cutting my teeth on the sport of road racing back in the 1960s. Now, 15 years later, he and I were preparing to head out onto the test track, he on the GS1100E, I aboard the three-quarter-liter 750E. After following the 1100's taillight for a few laps I remember thinking — in a mildly giddy way, I might add — that here I was, boy journalist, riding with one of the all-time great Japanese road racers around a world-famous test track on a bike that Americans had yet to see. What a job!

After Mr. Itoh deemed that I had command of Ryuyo's long, sweeping Turn 1, challenging esses and the low-gear hairpin leading onto the seemingly endless main straightaway, he handed the GS1100E over to me. I was invited to dial in the suspension to suit my riding style, and Suzuki's engineers eagerly made the adjustments whenever I pulled into the pits. Later, when Michael penned our GS1100E road test for the April 1980 issue, he wrote about the suspension: "It flat does what you ask of it. With soft suspension settings it wallows a bit, but each stage of suspension adjustment yielded more precision until Gingerelli settled upon position No. 3 for fork damping, fork preload and shock damping, and position No. 4 for shock-absorber spring preload as the optimum go-fast set-up for his 150 pounds."

In subsequent years I had the privilege to test other groundbreaking motorcycles, and to share test tracks with other celebrities like Mr. Itoh. And each one of those memories remain, to this day, priceless. — Dain Gingerelli

A man wearing a black leather jacket, helmet, and sunglasses is riding a classic motorcycle on a winding asphalt road. The motorcycle is red and black with chrome accents. In the background, another motorcycle is visible on the road, and the landscape is arid with some green shrubs and a clear blue sky.

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